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MARCH, 1881.

THE HORTICULTURAL SOCIETY of Western New York held its annual meeting the latter part of January, and we have just said good bye to many horticultural friends, not only from Western New York, but from other parts of the State, and from other States, for this association, by the intelligence and zeal of its members, for nearly a quarter of a century, has acquired far more than a local reputation, and its discussions are noticed and reports copied by the leading horticultural journals of the world. Among its members and guests we often see such honored names as DOWNING and WILDER, while friend THOMAS is almost always present to enlighten us with words of wisdom. From Geneva, Lockport, and other horticultural centers, fruit-growers and florists come in crowds to the summer and winter gatherings of this Association. We have never seen a small or poor meeting, for the people come to teach, and learn, and compare experiences regardless of the times, or the storms, or the press of business. To this Association Western New York owes much of its reputation as a fruit-growing district, and not a little of its prosperity, and similar associations in all parts of the country are shedding their light, teaching the best kinds of fruits and those best adapted to peculiar soils and climates, and markets, and the best modes of destroying insect enemies, thus spreading over the land a world of valuable information, without money or price. The gentlemen engaged in this work are benefactors, and worthy of all honor.

If our memory serves us right, Mr. BARRY has been president of the Western New York

Horticultural Society from its commencement, and there must be something in the culture of fruits and flowers to make people good-natured, if not good, for we have been connected with horticultural associations for nearly half a century, and in all that time have never heard an unkind or ungentlemanly word spoken in any meeting, while in all other associations with which we have been connected there have been occasional exhibitions of ill-feeling, and harsh words.

The President, in an admirable address, stated his belief that the next five years would witness more general horticultural progress than we had ever seen, even in the most prosperous times, because there is now really more culture and taste among the people, and it only needed prosperous times to set in motion the work of planting, building and improving and beautifying country and suburban homes. The Society must labor as it always had done to make known the value of fine fruits, and the beneficent influences of good gardens and beautiful lawns upon the health, comfort, refinement, and general well-being of people both in city and country. It must continue to disseminate a correct knowledge of the best varieties of fruits, and the best methods of culture and management.

THINNING FRUIT ON THE TREE.

Mr. BARRY also urged, as we have often done, the necessity of thinning fruit, particularly Apples, so as to grow crops of good size and quality, instead of a large mass of poor, almost worthless fruit. "Fruit is becoming so abund-

ant that a common or inferior quality will not sell, or at any rate will not command a paying price. When one-half or three-fourths of the Apple crop is fit only for the cider-mill or the evaporator, and will not sell for more than five or ten cents per bushel, the orchard becomes a very poor investment. The time has come when fine fruits only will pay. When we advise thinning, we are promptly told it will not pay; the labor costs too much; it is not practicable on a large scale, &c. The fact seems to be overlooked that it is no more labor to thin the fruits than it is to gather a crop of poor, unmarketable fruits. Thinning at the proper time not only enables the tree to bring the remaining crop to perfection, but gives a quality of fruit that will find ready sale and a fair price any season, and besides, it saves the tree from exhaustion."

When growers of Apples give their trees good culture and thin the fruit, allowing only so much to remain on the tree as will mature perfectly, there will be no temptation to put a few good specimens in the top of the barrel while the balance are small and poor.

PACKING FRUIT FOR DISTANT MARKETS.

Several times have we called the attention of fruit-growers and dealers, through these pages, and in other ways, to the importance not only of sending choice fruit to European markets, but in having it packed with the greatest possible care, for we have seen plenty of Apples in European markets so poor that they would not sell for anything like a remunerating price, and lots of good fruit so carelessly packed as to be almost worthless. For twenty years we have been in the habit of sending Apples to Europe, and have learned that, while inferior or damaged fruit is not needed, choice Apples arriving in good condition are eagerly sought at very high prices. We are, therefore, pleased to see the President of this influential society speak thus wisely on the subject. If some one would engage in the work of carefully selecting and packing and shipping only choice Apples to Europe, so that his brand would be a guarantee of high quality and good condition, almost fabulous prices could be obtained for his fruit. We have sent barrels of Apples for which twenty-five dollars each was refused, while we have seen barrels of American Apples in London for which twenty-five cents would be a high price.

"Much has been said and written on the subject of gathering, assorting and packing fruit for market, yet the loss to our orchardists arising from careless and improper handling continues to be very great. I have been surprised

to see the wretched condition in which a large portion of the fruit from the interior is received in the large cities, in many cases hardly worth the cost of transportation. The few growers who send their fruit to market in first-class style reap their reward in fair prices and a good reputation. The California growers and shippers seem to have attained great perfection in packing.

"I saw last autumn, in New York, Grapes and Pears as fresh, sound and beautiful after the 4,000 miles journey by rail as when first placed in the packages. The consequence was they sold readily at good prices in a season of a most abundant fruit crop. I have known large shipments to Europe that proved to be a total loss, from the imperfect manner in which they had been assorted and packed. Reports from Europe are constantly informing us of the losses sustained by careless packing, as well as by shipping unmarketable varieties and poor quality. When we consider how much it costs to send fruit to market—I mean distant markets, such as our large cities, or Europe—it must be evident that a poor article poorly packed will not pay. Such shipments only do injury to the trade, and there is no doubt but that serious injury has already been done to our fruit export from this cause. In former times, when only a few American Apples were sent abroad, and these chiefly Newtown Pippins, selected and packed with great care, fabulous prices were obtained, and American Apples were prized above all others.

"In 1848, just thirty-two years ago, when ocean voyages were longer than they are now, I took some barrels of Northern Spy and Melon Apples to show our friends in Europe. These varieties were then but recently introduced and comparatively rare. I distributed them among the leading pomologists in England, France, and Belgium, and all declared they were the finest Apples they had ever seen. The late Mr. RIVERS insisted on my sending a basket of them to the Queen, which I did.

"They were sent to New York by rail; made a long ocean voyage, thirteen or fourteen days; sent by rail from Liverpool to London; then packed in baskets and sent by express to different places in France and Belgium, and in every case were received in perfect order. I brought some back with me quite sound, in March, although I was twenty-one days on the water. This shows how easy it is to transport Apples a long distance, if of fine quality and well packed.

"The shipment of American Apples to Europe is destined to be immense. But if our growers and shippers desire to secure the best

results for themselves and their customers, they will at once determine upon a thorough system of selecting and packing. This also applies with equal force to our own home markets."

FOREST AND SHADE TREES.

Major HUGH T. BROOKS, the Chairman of the Committee on Native and Forest Trees, made a report in which he not only urged the importance of planting shade trees by the sides of the road, but early Apples, so that the traveler might eat refreshing fruit as he journeyed on; and even suggested that Peaches and Cherries would grow outside of farm fences. The usual treatment of shade trees received the following notice: "A venerable pioneer planted trees on both sides of the streets where he lived, allowing persons interested to pay the cost if they wished to. Forty years after, nine out of ten were dead; died because that kind of tree—the Sugar Maple—declines to grow without bark; the trees were required to hold horses, and furnish shade; they died in the attempt. Some of our Lockport friends who are famous for hybridizing Grapes, might, perhaps, furnish what is wanted by effecting a cross between a lamp-post and a White Oak. Until that is done, put guards round exposed trees the day you plant them, dig the ground a little better and mulch them."

FENCES.

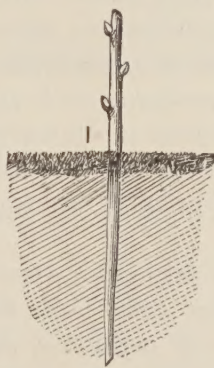
The Laws of New York State forbidding the pasturing of cattle in the streets and roads, Mr. BROOKS says, has abated "many nuisances in the shape of unsightly fences. The most costly and artistic fence deforms a fine landscape. Fences must sometimes be tolerated as necessities, but should never be regarded as ornaments. The necessity for them is far less than has been supposed. The modern discovery that fences are to keep cattle in, not to keep them out, is a valuable one. If you have a sow and pigs, fence off a lot big enough to keep them in, but don't oblige your neighbors to support two miles of road fence to keep them out. Unsightly fences are disappearing in many districts, and it is probable that where little stock is kept, it will soon be cheaper to cut their feed and carry it to them than to fence pastures. If the pens that we see in our country villages were taken away, with proper care, all would live in a beautiful park; this would foreshadow and aid the removal of social and sectarian barriers, a consummation devoutly to be wished." The change of public opinion in regard to fencing has been a pleasure and a surprise. Here we can hardly see a fence, and rods of old fencing may be had for the asking.

PROFITABLE FRUIT-GROWING.

JOHN J. THOMAS, Chairman of the Committee on Orchard Culture, had visited the principal orchards in Western New York, and made a most valuable report, showing that while exceptional cases, like an unusual yield of fruit in a scarce season, was not reliable as a guide, the facts he had collected year after year, showed that Apple-growing in Western New York, when conducted with ordinary intelligence and enterprise, was always remunerating, and in most cases the most profitable crop the farmer could grow.

HEDGES AND HEDGE PLANTS.

If one would have a good hedge, it will be necessary to give it the requisite attention at every stage of its growth. In order to do this, there must first be an understanding of what a good hedge is, and then a knowledge of the processes and operations by which the desired end is gained. A failure in one of several particulars may result in an imperfect and consequently unsatisfactory hedge-row that no after efforts can greatly remedy. The difficulties in this matter are not so great as to warrant any excuse for failure, for the conditions essential to raising a valuable hedge are well known, and we shall here endeavor to present them so clear-



YEARLING PLANT TRIMMED AND SET.



PLANT ONE YEAR IN HEDGE ROW.

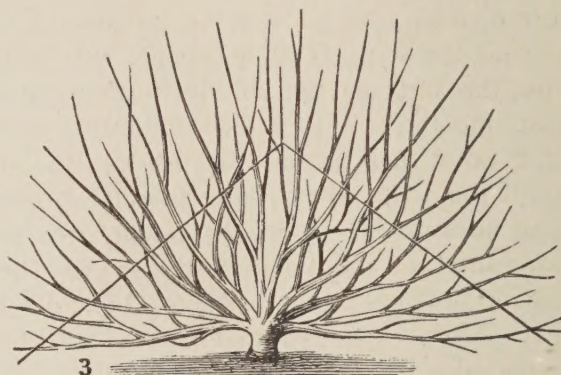
ly that there need be no mistake. Having already considered the best kinds of plants for the purpose, and the methods for rearing them, we have now to notice in detail the operations of after culture and treatment.

The strip of land a hedge is intended to occupy should be prepared for the purpose before planting. This preparation should consist of such plowing, pulverizing, manuring, and other cultivation that will fit it as thoroughly for the reception of the plants as for a crop of Wheat or of Corn. In the spring following, when the soil has become dry, a good plowing and working with the cultivator will make it ready for

immediate use. The same season, therefore, that one sows the seed of his hedge plants, he should commence the tillage of the ground that the plants are ultimately to occupy. If the soil is poor it must be properly enriched; there is no better way to effect this than by spreading over the surface of the ground well-rotted manure, and plowing it in as early as August. If, for any reason, this operation cannot be performed early in the season, the manure may be spread over the surface before winter sets in, and the water and melting snow will carry all that is most valuable to every part of the soil. When stable-manure cannot be conveniently obtained, any preparation of artificial fertilizer may be employed that will make the soil capable of producing a first-rate crop of Corn. It is absolutely essential that the growth of a hedge should be strong, at least in its early years. If the manuring at first should prove inadequate, top-dressings afterwards must be given to the necessary extent. Rich prairie lands will require no manuring, but good tillage is as much needed with them as other grounds. On new lands, with heavy prairie sod, a good preparation is to break up the ground and raise a crop of Corn, and after its removal in the fall, to throw up the soil with the plow and let it remain rough during winter. The land prepared for the hedge-row should be at least six feet in width. Neither of the hedge plants to which attention has been directed will flourish in damp situations, or in hollows where water settles and remains for a considerable time. Such places, therefore, where one is apt to get a poor farm-crop on account of excessive wet or dampness, should be suitably drained. Ordinarily, on high or rolling ground, drainage is unnecessary.

When the time arrives, in spring, for transplanting the young plants that have been removed and sorted into sizes as previously directed, they should be shortened, both at the top and bottom, leaving the top four or five inches long and the root six or eight inches. When one has a large quantity of plants to prepare in this manner, the work can be very expeditiously performed by taking a small handful at a time and, placing it on a firm chopping bench, trimming the whole by a single stroke at each end, with a sharp hatchet; otherwise, they may be shortened with a strong, sharp knife. Plants that have been properly managed after removal, and that have not been exposed to the sun, or drying winds, will grow with great certainty after planting; but when one is obliged to procure his plants from a distance he cannot always be sure of their real condition, and, in this event, every reasonable precaution

should be taken to ensure their prompt growth. One of the most valuable practices, to secure the growth of young stocks, is what is called puddling; it consists of dipping the roots in a paste or slime of clay, and coating each one with it. The root thus encased is afforded great safety from drying, even though it should be subjected to a severe drought, and this is no unfrequent occurrence in the spring. Besides, the weather is often such that, without especial care, when considerable transplanting is performed, the plants will suffer to some extent from necessary exposure; puddling is, therefore, in most cases of transplanting, a useful measure, and the little extra labor it requires is sure to be compensated many times. A strong, light cord should be stretched along the middle of the prepared strip where the plants are to



FORM OF PRUNING A HEDGE.

be set. The Japan Quince can be planted six inches apart, and the Honey Locust and Osage Orange at nine inches; it proves very convenient to have the cord marked off into distances exactly as the plants are to be set, and this can be done with a little red or black paint. The plants should stand in a single line.

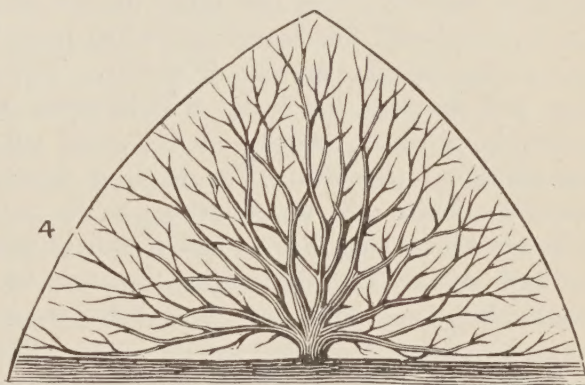
Different styles of planting have been practiced, such as setting the plants in double or triple rows, setting them very closely, as within three or four inches of each other, and also at distances as great as eighteen inches or two feet. Experience has shown that the plants when close to each other grow thin and feebly; that with sufficient care a better hedge can be made with wide than with narrow planting; but that at a distance of nine or ten inches there is space for the plants to develop well and healthily, and to make strong branches that form a close, well-furnished base. Both the Honey Locust and the Osage Orange are naturally strong-growing trees, and, necessarily, their strength of growth must be checked in a hedge, and this is effected by closeness of planting and by pruning, especially summer pruning. The determination of the best distance to set the plants in the hedge has been the result of experience after many trials and many failures.

Planting is best done, on the whole, with a dibble, which may consist of a smooth, round, hard-wood stick with the point covered with iron. A very good dibble for the purpose may be made of the upper part of an old spade handle, cutting it about sixteen inches long and fastening a pointed ferule on the lower end. When one makes a business of planting hedges, or has a great amount of it to do, as some western farmers, it will be best to provide one's self with the best kind of dibble, such as used by nurserymen. It is in shape somewhat like a mason's pointed trowel, but with a firm, unyielding steel blade. For all ordinary purposes, however, the spade-handle dibble will be sufficient. The dibble is thrust into the mellow soil, straight downwards by the side of the line, and when withdrawn a plant inserted so deep that the crown, the point at the junction of the root and the stem, shall be about two inches below the surface; the dibble is then again thrust into the soil in a slanting direction, so that its point shall pass a little beyond the bottom of the root, when, with a slight twist, a strong pressure is made that forces the soil around the root and securely tightens it; a little more pressure higher up and the work is done. After a little practice, great expertness is acquired. The light soil will gradually settle and the plants will then stand with their crowns near the surface, or about as they naturally grew. In setting the plants, one must be on his knees to do the work well, and, therefore, should supply himself with comfortable kneepads. Properly equipped, a great length of row may be accomplished in a day. It will be necessary to have a boy or man as an assistant, to puddle and supply the plants as wanted. When the planting is completed, or from time to time as it progresses, the ground can be finished off on each side of the row by lightly raking it over.

During the summer the ground on each side of the hedge-row must be frequently stirred, to keep it free from weeds and to promote the growth of the young plants; if the row is short, this work can be performed with a hoe, but if of considerable extent, the plow and cultivator may be employed. In the latter case, as soon as the weeds begin to appear turn two furrows towards the row on each side, using a small plow and one horse; afterwards, when weeds again appear, plow away from the row and then smooth and pulverize with the cultivator; any weeds not destroyed in this way may be removed by hand and with the hoe. In this manner the plants should be cultivated through the summer. In the fall, two furrows should be thrown up to the row on each side, to pro-

tect the plants from frost, and thus prevent their being thrown out of the ground during winter. No pruning is needed the first season. The plants will send up from one to three shoots, commonly one strong and upright and one or more side shoots.

In the spring of the second year, operations on the hedge will begin by plowing away the soil that was thrown up to the row the previous fall. After this, provided with a heavy, strong, sharp knife, go along and cut off most of the growth of the previous year. Cut the upright stem within one bud of where it started, leaving the side shoots below it a little longer, as indicated in the illustration, figure 2, which gives the appearance of the plant in the spring, one year in the hedge-row, the lines showing where it is to be pruned. As the pruning progresses, any plants that have failed will be discovered and may be removed, and these are now to be replaced with plants that were reserved and planted out by themselves the pre-



FORM OF FULL-GROWN HEDGE.

vious spring, with a view to this use. Particular care must be exercised in transplanting these reserves, for the reason that, if they should fail, it would be exceedingly difficult afterwards to put in plants that would thrive or keep pace in growth with the others. The cultivation of the second summer is to be the same as that of the previous one. No pruning should be attempted this summer, but the plants allowed to grow unrestrained after the spring pruning already noticed. It is a practice with some to cut back the growing shoots of the second summer, early in the season, or as soon as they have become sufficiently hard to bear the knife. We prefer not to do it, for the reason that a strong growth of fewer shoots is better than a much greater number of weaker ones. The aim should be to produce a strong skeleton or frame work, and summer-pruning, which is always enfeebling, should not be attempted in the earliest stages of growth. It will not be necessary in the fall of the second year to back furrow the rows, for the plants by this time will be firmly rooted, unless it be those that were

transplanted into gaps the previous spring; these should be looked after more carefully, and have the soil drawn up about them.

Early in the third spring, the upright shoots may be cut back to four or six inches of the previous year's growth, but the lower shoots may be left nearly their whole length, and the intermediate ones proportionately shortened, thus giving the hedge a form, of which a section would appear of pyramidal form, as indicated by the straight lines in figure 3. This form of hedge secures air and light to the whole plant, and induces a growth of the lower part, while the natural tendency is away from it; but closeness at the base is one of the requisites of a good hedge, and, in pruning, this result must always be kept in view. The present summer, when the new growth has become firm, it may be cut with a pair of hedge-shears within four or six inches of the spring pruning, observing the pyramidal form given it in the spring. A new growth will immediately start, and this will be left to mature. The cultivation of the soil is to be continued this season as far as necessary to prevent the growth of weeds. Thus, from year to year, the hedge will increase in height from eight inches to a foot, and correspondingly in breadth. The work is apparently slow, but it will be enduring; at the end of five years we shall have a hedge four or five feet high and six feet through at the base, impenetrable by man or beast. In its latter stages it may be given a slightly curved outline, like that shown at figure 4, which will enhance its attractive appearance. The growth hereafter will consist of finer shoots, and both the spring and summer pruning will be lessened; but it should not be neglected, or it will be at the expense of the base of the hedge, and the injury entailed in a short time will be difficult if not impossible to repair.

A hedge that is apparently lacking in vigor should no longer be subjected to summer pruning, as this operation has a tendency to enfeeble the plants; but no such result follows from the removal of well-ripened wood at a season when the plant is dormant. Summer-pruning may, consequently, be omitted to advantage in the case of a hedge that is growing feebly, and the spring pruning may be very severe, for the fewer the new shoots that are made, the stronger will they be individually.

The Japan Quince is comparatively a slow-grower, and a hedge of it may be reared and kept in order without a general summer pruning. A little trimming of the prominent shoots in summer will generally serve to keep it in symmetry after its annual winter or spring pruning.

SUMMER RADISHES.

About the handsomest vegetables that grow are the little Summer Radishes. When displayed at well-kept shops, or in market wagons, the delicate pink and scarlet and white blend nicely, and look spring-like and cheery and refreshing, while for table ornamentation they are as beautiful as a bouquet of flowers. We thought, therefore, a colored plate of these little beauties would be an ornament to our MAGAZINE and quite acceptable to its readers.

To be worth eating, a Radish must be crisp, young, mild-flavored, thin-skinned, and so tender that it may almost be crushed between the finger and thumb, and almost transparent as glass. In this condition it is easily digested; but when hot, tough and thick-skinned, it is entirely unfit for food. The Radish is largely used in France for breakfast, and, on account of this fact, one or more of the French varieties have been called French Breakfast Radishes.

The Radish succeeds best in a warm, light soil, and, if sown early in the garden, select a warm, sunny border, protected from the prevailing cold winds. Those who live near the woods, where they can obtain a little of the soil from the fallen leaves, will find this the very best dressing for a Radish bed. Soot from soft coal makes an excellent top-dressing, its color, perhaps, causing an absorption of heat, and also affording some protection from the little flea that eats the tender leaves. Those who grow them in hot-beds must give plenty of air and light, or they will not form good roots, but run almost entirely to tops.

In the colored plate we have shown several of the best Summer Radishes, and some time may give a plate of winter varieties that may be grown late in the summer and kept in a cool cellar, or pit, for winter use.

Nos. 1 and 8 are the Red Turnip, the first with a white tip, but otherwise alike; skin scarlet, flesh white. When well-grown and full size, an inch and a half in diameter.

No. 2. Scarlet Olive-shaped, White Tip, or French Breakfast, is one of the earliest and most beautiful, as well as one of the tenderest, if not the best of all.

Nos. 3 and 4 are Turnip varieties, similar to Red Turnip, except in color, rather smaller, and perhaps a few days later in ripening.

No. 5 is a Scarlet Olive-shaped, an excellent sort, like No. 2, except in color.

No. 6 is a very beautiful, long, clear white Radish, known as Long White Naples. Desirable for its color, good late in the season.

No. 7 is the old and still favorite market Radish, Long Scarlet Short Top.



WEEDS.

We are too apt to be dazzled by the externally beautiful merely, expending all our admiration upon it, and turning carelessly aside from that which offers no alluring attraction for the eye. In nothing is this more strikingly exemplified than in the abounding love which we all lavish upon flowers, either wild or cultivated, and the utter distaste, contempt even, with which the poor, humble weed, often most closely allied to its more favored relatives, is regarded. We have had our heart many a time moved with compassion as we have heard the railing accusation brought against these lowly members of the plant world, growing anywhere and everywhere, unloved and unsought, friendless and alone. And yet, some of these very ostracized weeds, if closely examined, would disclose such wonders of hidden beauty as could not fail to interest the most indifferent observer, exhibiting, as they do, the divinely consummate care which the all-loving Father bestows upon the most insignificant of his creations, alike with the grandest and most important.

There are the Milkweeds, for instance, of a dozen varieties or more, among our commonest weeds, which, as we come carefully to study, we find are simply marvellous in the curious and elaborate construction of their blossoms, all as perfectly adapted to the accomplishment of certain purposes in the economy of their life as can possibly be imagined. With a small magnifying lens, (which we earnestly wish to enjoin upon every one not already in possession of to procure at the earliest opportunity, for it will surely prove a "joy forever,") let us proceed to look at the structure of a flower belonging to the coarsest and most wide-spread of all the Milkweeds, the *Asclepias Cornuti*. Noticing first the two envelopes, the calyx and the reflexed corolla, we then come to the stamens with queer hooded and horned appendages. So extremely peculiar, indeed, are these unusual organs that they can only be fully understood with the plant in hand. The stamens are joined by their filaments into a tube which en-

closes the pistil, while each of their two-celled anthers adheres to the stigma. In these cells are deposited pear-shaped, waxy, dark-colored pollen-masses. Two of these masses are contiguous in adjacent anthers, being united into pairs which hang from little glands growing on an angle of the stigma, and when removed, as can easily be done by gently uplifting with a pin or needle, bearing considerable resemblance to tiny bits of saddlebags. Now comes the most extraordinary part of it all; insects alighting upon the great umbel of Milkweed blossoms in pursuit of nectar, in their peregrinations over them, in some way become entangled by their legs in these pollen-masses, which stick fast, and so are carried off by the insect to be left upon the stigma of some other kindred flower which it may visit near or distant. The ovules of this flower are fertilized by the pollen brought to it in this remarkable manner, thereby ensuring the production of perfect seeds, by which the plant is to be reproduced hereafter. What a beautiful arrangement is this in the adaptation of the flower to the insect, and of the insect to the flower, for their mutual benefit and blessing.

There is a species of prostrate weeds growing especially by roadsides, on railroad tracks, and in sandy, waste places, creeping over the ground in patches, and another one forming tufts with ascending stems; the first of these, with purple spotted leaves, is *Euphorbia maculata*, and the other, *E. hypericifolia*, both belonging to the great Spurge family. The flowers of these two plants are small and inconspicuous, yet full of interest to those who love to observe and understand what nature has to reveal. In fact, the flowers are smaller and far more inconspicuous than one would at first remotely suspect, for what has the appearance of a single flower is really a collection of flowers of two kinds, several staminate and one pistillate collected within the circle of an involucre that imitates a calyx. Upon picking them apart, there are the staminate flowers, each springing from the axil of a delicate bract, and the pistillate, oddly

enough bearing its ovary at the very end of the thread-like stipe arising from the center and protruding beyond its companions. An exquisite work, truly, to be wrought upon mere "cumberers of the ground."

Space forbids our enlarging upon this most fruitful theme of weeds. A passing glance at the Nettle must suffice. It is fiercely armed with stinging prickles, making it rather a formidable object, to be sure; but once courageously grasped and examined, it will amply repay all the trouble attending its difficult acquaintance. We well remember, a long time since, how we were puzzled over some of its specks of flowers. As we looked at them, first one, and another, and another, would go off in the funniest little puffs; we couldn't help regarding this as a very queer performance for such infinitesimal affairs, but come to find out, this is their normal behaviour. The filaments are inflexed in the bud, and when the calyx opens they straighten out, throwing off the minute puffs of pollen-dust alluded to.

VICTOR HUGO, in his *Les Miserables*, gives a most interesting paragraph to the despised Nettle, concluding with this injunction: "My friends, remember this: there are no bad herbs and no bad men, there are only bad cultivators." However this may be, we do firmly believe that everything that the good God has created has its natural and appropriate use, only in our blindness and ignorance we often do not comprehend it, and then how easy to stigmatize the obnoxious thing as "worthless!"—MARY TILDEN, *Boston, Mass.*

THE CINERARIA.

The Cineraria, when properly grown, has few equals for the greenhouse and the conservatory. When in flower it is one of the most attractive plants for table decoration; its compactness, abundance of bloom, and the beauty and enduring character of its flowers constitute it a charming plant for this special purpose. As a flowering plant it is very greatly under the control of the operator. The plants are almost entirely raised from seed, and the time of flowering, other conditions being the same, depends upon the time of seed-sowing. The blooming season may commence early in December, or it may be deferred until February. If the seed is sown about the middle of June, flowers may be had early in December, but, if the sowing is made a month later, the plants will come forward fast enough for flowering in January and February, if properly cared for.

As I have raised these plants for some years with pretty good success, a statement of my

method of operating with them may be of interest to beginners.

As I am not usually desirous of having the plants bloom early in the winter, I do not start the seed until midsummer. I then take common potting soil and sift it, and, having first placed some drainage in a seed-pan, or a flower pot of medium size, I fill it nearly full of the fine sifted soil and give it a watering; the seed is now sown upon the surface of the soil and given a very light covering of sand, through which the little plants can easily push. The pot, or pan, now has a pane of glass placed over it, and is stood away in some shady place in the greenhouse. As soon as the plants are large enough to pot off, they are put into very small pots and placed in a cold frame until they fill the pots with roots. At the end of Decem-



ber or beginning of October, the plants are shifted into six or eight-inch pots, which are large enough for them to complete their growth in. To grow strong, the Cineraria must have good soil. A compost of rotten sods and well-rotted manure in equal parts, with the addition of a little sand, is a good material for this plant. After repotting, the plants are again placed in the cold-frame and kept there as long as the weather will permit, giving all the sun and air that is possible. When it becomes necessary to take the plants into the greenhouse, they are placed as near the glass as they can be with safety; plenty of light and air with an atmosphere a little moist are essential for the well-being and perfect development of the plants. At the present time (Christmas) I have plants, raised in the manner now described, that have a breadth of twenty inches with leaves measuring ten inches in diameter. Ever one who sees my plants asks why he cannot get anything

like that. I can only reply fully by making the statement that I have here given.

The great pest of the *Cineraria* is the green-fly. It may easily be destroyed with tobacco smoke, but it must be carefully applied, as no plant is more easily injured by a strong dose of this smoke.

I have used the Persian insect powder with good effect for green-fly on the *Cineraria*. The plants should be turned on their sides, or upside down, and the powder puffed on the under sides of the leaves, for the flies are mostly there. After a day or two, brush off the dust with a soft brush or whisk, and then keep the plants clean.

The *Cineraria* is a plant that ought to be more freely grown; in the months of December and January, when there is a scarcity of flowers, what a show a good collection of *Cinerarias* make! A little care in procuring good seed, and timely sowing, and a little attention to the wants of the plants as required, will reward one to his full satisfaction with handsome, shapely plants and an abundance of beautiful flowers.—R. G.

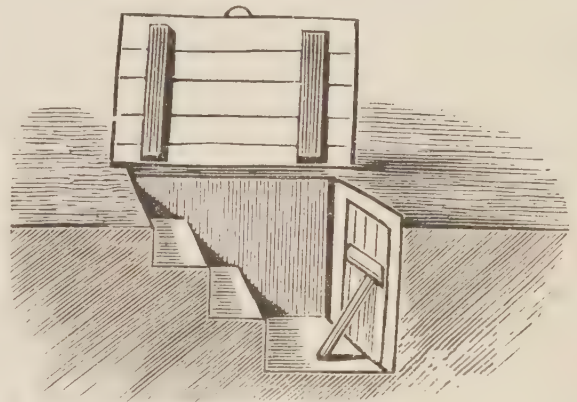
IN THE GARDEN.

MR. VICK:—For about three years past I have given my attention to raising house-plants and cultivating a flower garden. My success has astonished my friends, and myself as well. It has been greatly to the benefit of my health to rise early and work in the fresh earth, beside the satisfaction of seeing beautiful, thrifty, and showy plants and flowers in return for my labor. I have been particularly successful with *Callas*, and, with your permission, will give you a bit of my manner of handling them. During 1880 I had twenty-three large, well developed blossoms from three bulbs, and this winter I can show as fine plants as ever grew. My way is to let them continue growing and blossoming until about the first of September. I then take them and shake off the soil, trim off the small bulbs and fibrous roots, and pot them in medium-sized crocks with moderately rich soil, which has been sifted through a common sieve, for the purpose of taking out all the germs of worms and insects. I then press the earth tightly around the bulb and set them in a warm place, standing the crock in a vessel somewhat larger and keeping water constantly in it. About once a week I water freely with liquid cow-manure. As the weather grows colder, I warm the water, and increase the heat of it until it reaches a boiling point. Stir the earth as often as once a week, and give them all the light and sunshine possible. I can then sit down and see the beautiful flowers unfold. My success with

other plants has also been excellent, and at another time I may give you another chapter.—
L. M. L., *Wellington, O.*

KEEPING CELERY IN WINTER.

Hearing of so many failures in preserving Celery in winter, I am induced to give my experience in relation to this matter. I used to put my Celery in trenches, as is more or less generally practiced; the result was, I had lost half of it, or more, by rotting, especially if there had been much rain during the fall and winter, after the vegetable had been stored away. After many annual losses, as well as suffering the inconvenience of Celery stored in trenches, where, often, in severe weather, it is either impossible to remove it with safety, or it is done with the greatest difficulty, I thought of a plan which has ever since proved successful in practice, and which I will now describe. I



ENTRANCE TO CELERY PIT.

had a pit dug and prepared, which was completed in almost as short a time as it usually required to dig trenches.

The pit was made eight feet long, five feet wide, and three feet deep. Two pieces of plank, each about ten feet long, were then placed along the sides of the pit at the ground line, and were let into the ground at each end, so that the upper edge of one was flush with the surface, while the other, on the opposite side, not being dropped so much, stood six inches above the surface of the ground. These planks formed the plates on which the roof rested, and one of them being higher than the other, gave the roof a pitch, and which was six inches for five feet, enough to carry off the rain falling on so small a surface. Three posts, one at each end and one in the middle, were placed under each plank, as supports. A roof was made of inch boards doubled so as to batten the cracks. The entrance to the pit was gained by excavating a little in front of it and placing three or four steps in; the front of the pit was boarded and supplied with a door. A frame was placed around the dug-way entrance to the

pit and covered with a rough door, placed on without fastening, so that it might be easily thrown entirely off. In the fall the roof is supplied with a covering of leaves four or five inches in thickness, which remains on all winter, preventing the hardest frost from entering the enclosure. In the spring the leaves are removed and both doors thrown open and the cave remains dry and airy during summer. This place was made several years since, and still remains in good condition.

Before the Celery is put in in the fall, the ground at the bottom of the cave is forked three or four inches deep. When the Celery is dug, all the suckers and straggling leaves are removed, and then it is ready to be placed in winter quarters. I commence at the back side of the pit and, with a trowel, open a trench about three or four inches deep, and in this place the heads of Celery in an upright position, packing them closely together. The next trench is made so there will be a little space between the rows. In this manner the whole stock is placed away. A pit of the size here described will hold about three hundred heads of Celery.

The advantage of this place is that you can open it every day and procure your daily supply fresh and sound, and not have the Celery lying around in the cellar for a week at a time until all its freshness and flavor is gone, as is generally the case where it is placed in the trenches, since a trench cannot be opened every day. I can go in the dark and take Celery out of my pit.

Such a place will keep in excellent condition other vegetables, as Beets, Carrots, Parsnips, Salsify, and Horse Radish; they will not wilt as they do in a dry cellar. In the spring, when I have taken up Parsnips and Salsify, I have put them into this pit and they have kept a long time fresh and good.

A pit of this style is never objectionable or offensive to the sight like a root-house, because it is made level with the surface of the ground and cannot be seen until one is close to it. It can be made in any corner, providing it is dry. Celery must be kept dry both above and at its roots; yet a cool, moist atmosphere is indispensable for keeping it crisp and good.—R. G.

CALIFORNIA PRODUCTS.—California is raising the Bamboo in several parts of the State. In Los Angeles county it has grown to a size large enough to be used for water pipes; for this purpose it is cut into suitable lengths and bored out. The cultivation there of Cinchona trees is now agitated, and trials of it will probably be made.

SMILAX.

Perhaps no climbing plant in cultivation equals this very graceful climber in beauty and wealth of foliage and in habit of growth. The Smilax vine is especially adapted to working up with cut flowers and to trimming and decorating, as the hard texture of its foliage enables it to keep for several days without wilting. It succeeds well as a house-plant in an ordinary living-room; it loves abundant moisture, and should be syringed at least once a day to keep the foliage bright and green; it does best in a rich, loamy soil. Smilax may be propagated either from seed or by division of the old bulb;



the former method is practiced by florists generally. Seed should be sown in shallow boxes and started in a hot-bed about the middle of August. When the seedlings commence to throw out leaves they should be pricked off in boxes of light soil, or they may be potted singly in small pots. When about a year old, the bulb should be repotted in fresh soil. I find the best way is to put three bulbs in a seven-inch pot and keep them rather dry and close until they begin to start, and then water them more freely. With this treatment, fine plants may be raised by the holidays, and about that time they will commence to bloom. The flowers are small, and bell-shaped, of a greenish-white color, and are produced singly, or in pairs, at the axils of the leaves; they emit a sweet and

delicate odor, and seed is produced freely. After seeding, gradually withhold water and allow the plants to dry off. The pots may be placed in the cellar until wanted the next summer. I would not advise one to repot the bulbs the second year, but, instead, to remove about half the soil from the pot and to refill it with some more that is fresh and rich. After several years practice, I find this the best treatment for this popular vine. When the matter is understood and little difficulties overcome, the growing of *Smilax* is a delight.—FRED.

ROSE GOSSIP

That the Rose is rapidly growing in favor in this country, there is in evidence the existence of the numerous and flourishing establishments, of comparatively recent foundation, devoted almost exclusively to the culture and propagation of this graceful flower. In the Eastern, the Middle, and the Western States there are growers who, making a specialty of the Rose, propagate it in immense quantities, and certainly complaint cannot be made that they are exorbitant in prices, when many of them offer to send free by mail one dozen plants of distinct varieties, with names, for the insignificant sum of one dollar; these, as a matter of course, are small plants, but those who desire better plants, can procure them at the modest rate of two dollars per dozen. These are prices which ought to popularize the Rose, and the fact that, with ordinary good care, it flourishes luxuriantly in all sections of the country is a strong incentive to its more general cultivation. But with all our advantages we sadly lack the enthusiastic ardor with which this lovely flower is cultivated in France, England, and other European countries. There, grand Rose shows succeed each other in the principal centers from June till October, and, to stimulate the efforts to improve the flower by careful culture and hybridization, prizes, medals, diplomas, &c., are awarded to successful competitors. France and England take the lead in the production of new varieties. Our own country can boast of having originated but a very small number of the Roses now in commerce, though two classes are products of America, the *Prairie* and the *Noisette* Roses. The former at present contains about twenty, and the *Noisette* about ten varieties of American origin; add to these those in the other classes, *Tea*, *Bengal*, *Bourbon*, and *Hybrid Perpetual*, twenty sorts, and we have the sum total of about forty varieties which complete America's contribution to the Rose list of the world. Though many of our finest Roses have originated with English growers, yet France is indisputably the congenial and tradi-

tional land of the Rose, and annually we receive from French rosarians novelties of surprising merit, together with a larger number that ultimately prove to be of secondary consideration. But we are tempted to forgive a grower for sending us a dozen of commonplace flowers, when we discover that he has included a couple of gems of the first water, in the style of *La France*, or *Baroness Rothschild*, for instance. But to judge from the comparatively limited number of novelties offered the present year, by several of the leading French growers, we may be permitted to conclude that they are becoming more circumspect in the selection of seedlings, and that we may be enabled to obtain Roses of real merit without being obliged at the same time to accept a larger number that often prove of no great value and are not at all desirable. Many of the leading French establishments offer but two or three new Roses, and *Liabaud* has one only. As it may prove of interest to your readers, we will mention some of the novelties of 1880, giving, of course, the growers' descriptions.

Schwartz, of Lyons, sends out three—H. P. *Guillaume Gillemot*; "flower very large, full and globular; color, carmine-rose with silvery shadings—a true perpetual." *Tea*, *Reine Maria Pia*; large, full flower; color, deep rose with crimson center—a seedling from *Gloire de Dijon*. *Tea*, *Madame Joseph Schwartz*; "medium size, full, and of good form; color, white tinted with flesh." To judge from the description and a colored plate before us, this must be a very beautiful Rose, and will probably prove a decided acquisition. These Roses were awarded first-class medals at three different Rose exhibitions.

Madame Veuve Ducher offers two only—H. P., *Rosieriste Jacobs*, "a large, full flower, bright velvety-red shaded with black; very free perpetual bloomer." *Polyantha Perpetual*, *Mademoiselle Cecile Brunner*, "blooms in corymbs; bright rose on yellow ground, very fragrant."

Gonod sends out two, both *Teas*—*Antoine Devert*, "large, full-bloomer, of fine form; color, white with sulphur center, reverse of petals salmon-rose, very fragrant." *Baron Alexandre de Vrints*, "a seedling from *Mad. Tartas*, flowers in corymbs; color, pale rose with red markings and silvery shade."

Vigneon, of Orleans, has two—H. P., *Monsieur Alfred Leveau*, "large, fine form; color, bright carmine-rose." *Monsieur Thouvenal*; "large flower, rather flat form, beautiful velvety red." He also offers two H. P.'s raised by *Grange*—*Souvenir du President Porcher* and *Mad. Maxime de la Rocherie*, seedlings of *Victor Verdier*.

Antoine Levet sends out the following: Tea, Fiancailles de la princesse Stephanie et de l'Archiduc Rodolphe, (this name should be divided into chapters) "a seedling from Gloire de Dijon, medium flower; color, yellow, salmon, and orange." Madame Caro, a Tea, very full, of medium size. H. P., Francois Levet, china-rose color.

Liabaud, of Lyons, who has given us so many fine dark Roses, sends out but one novelty—H. P., Madame Montel, "a very large flower, nearly full, of a beautiful pale-rose color, fine form and extra large petals.

Souper & Natting, of Luxembourg, send out four, as follows: H. P., Emperor of Brazil, "very large, very full, outside petals brown with purple shades, center magenta and red with black shadings." H. P., Comtesse Nathalie de Kleist, "flower large, full, and cup-shaped; color, coppery pink, reverse of petals reddish; on the whole, a Rose of a new color. Tea, Prince Prosper d'Arenberg, "full; color, salmon with red center." A new Hybrid Tea, Madame Julie Weidman, "flower large, full; color, salmon-rose with silvery shading, center carmine, and reverse of petals satiny-violet; extremely free-flowering."

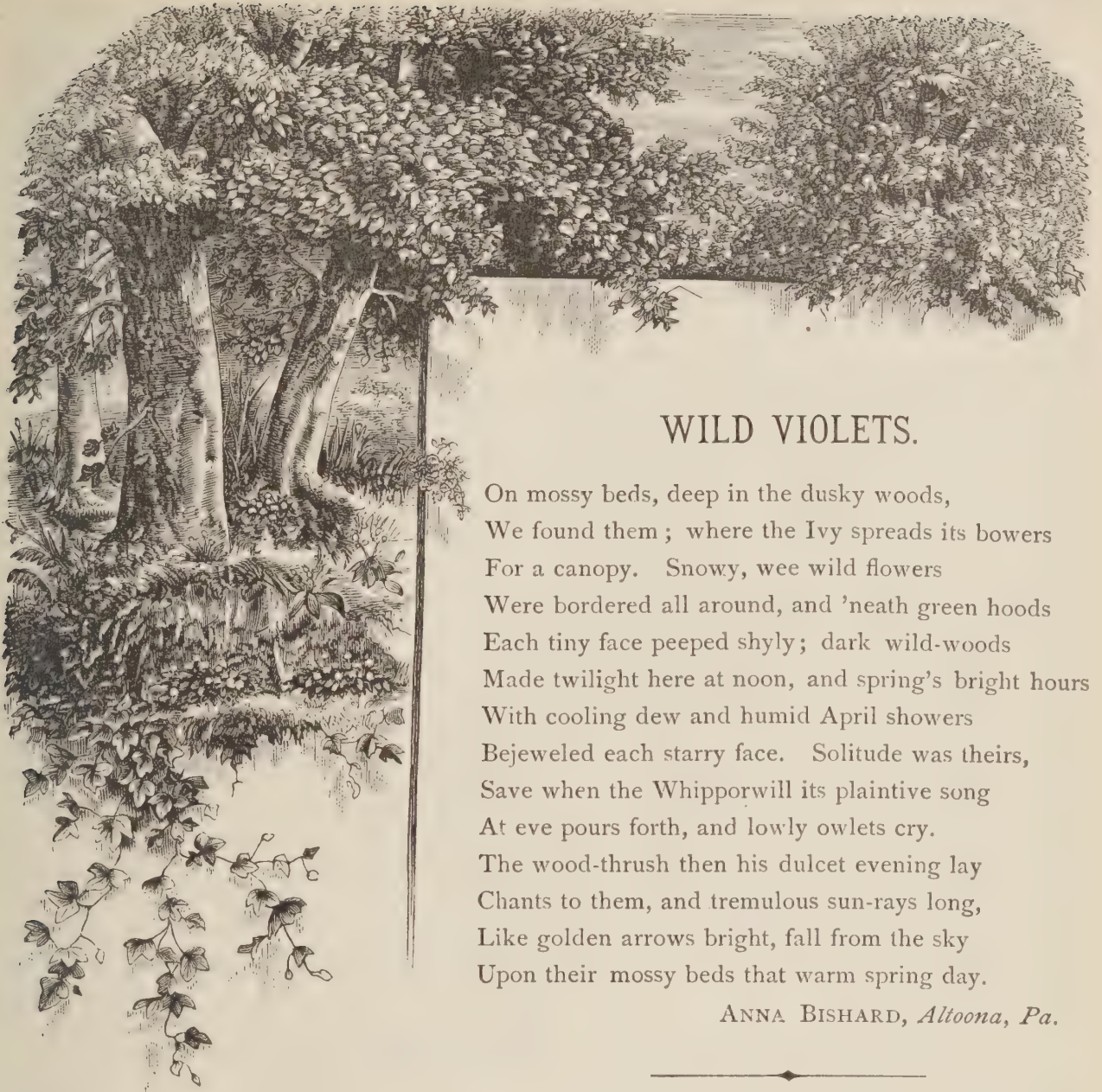
Moreau-Robert, of Angers, sends out three Hybrid Perpetuals, as follows: Anicet Bourgeois, cherry-red; George Moreau, bright-red, and Dumnacus, shaded carmine-red. He also offers a perpetual White Moss, Blanche Moreau, which, if the description is borne out by its qualities, cannot fail to prove a most valuable Rose, far surpassing any known White Moss. "Plant extremely vigorous, and the wood has a healthy appearance, quite unlike the yellow, sickly look that our present White Mosses bear. The flower is large, full, and of purest white, opens well and is of perfect form. Buds thickly covered with beautiful green moss, as are the sepals, which extend beyond the buds an inch or more."

Leveque sends out four—H. P., Comtesse de Camondo, "flower very large, full, and finely imbricated; color, bright red with carmine reflections and velvety-brown shadings." H. P., Comte Frederic de Thun Hohenstein, "flower large, full, and well-formed, deep crimson shaded with brown and carmine, very distinct." H. P., Auguste Buchner, "large, full, imbricated flower; color, deep purplish-red shaded with light scarlet; first-class flower." Tea, Mad. Chedane Guinoisseau, "flower large, full, and of beautiful form; color, canary-yellow; buds long, in the style of Safrano, but much larger; will prove a lovely Rose for bouquets." The continuation of our "Gossip" is deferred until the next month.—F. LANCE.

AN AUGUST DAY'S WORK.

MR. VICK:—I am not a subscriber to your invaluable and highly-prized book, but my sister is, and as I had the happiness of spending the summer months with her at her pretty place in the country, I had the benefit of her magazine every month. We are both great lovers of flowers, and both cultivators to some extent, especially of house plants. We had often been puzzled how to procure the proper kind of soil for our plants, but last summer, in one of the MAGAZINES, you solved the difficulty, and we found that, by following your directions and taking a little pains and trouble, the means were close at hand to get what we wanted. I remember well the hot summer's day we went to the woods to dig near the trees for leaf-mold. Then the black earth from the corners of the fences in the meadow, and the sand from the hills. Oh, I can tell you, Mr. VICK, our arms ached when we reached home with our spoils. Then, to sift it, (for which, by the way, we purloined mamma's flour sieve,) and mix it well together, an equal part of each. It was a good deal of trouble, but the soil we produced was as fine as snuff, and the result has been most satisfactory. That was in August, and not a slip that I started then but would be in blossom now if I would permit them, but I pinch them back, because I do not think it good for such young plants to be allowed to blossom. One or two I have permitted to bloom and I am amply rewarded for all my labor by the vivid colors and full, rounded petals of the blossoms. Geraniums are my favorite plants, I think them more satisfactory than any other house plants. Their foliage is so pretty, and with a few Heliotropes and Begonias for the sake of variety, I am always able to have a pretty window. I have no garden, like my sister's; she lives in a most romantic spot, not far from the shores of the beautiful Bay of Quinte, and can indulge her taste for the beautiful to the fullest extent. And now, since she has taken your MAGAZINE, the cultivation of flowers has become a mania with her.—E. J. H., Kingston, Ont.

NICOTIANA SUAVEOLENS.—A correspondent in a late number of the *Gardener's Monthly* speaks well of *Nicotiana suaveolens* after giving it a trial. It was continuously in bloom through the summer and late autumn. The flowers "are of a peculiar, pure, waxy-white, averaging an inch and a quarter across, and the long, greenish-white tube adds to their beauty. At night they have a delicate and exquisite jasmine-like fragrance, and, being borne on long stems, are particularly fitted for bouquet work."



WILD VIOLETS.

On mossy beds, deep in the dusky woods,
 We found them ; where the Ivy spreads its bowers
 For a canopy. Snowy, wee wild flowers
 Were bordered all around, and 'neath green hoods
 Each tiny face peeped shyly ; dark wild-woods
 Made twilight here at noon, and spring's bright hours
 With cooling dew and humid April showers
 Bejeweled each starry face. Solitude was theirs,
 Save when the Whipporwill its plaintive song
 At eve pours forth, and lowly owlets cry.
 The wood-thrush then his dulcet evening lay
 Chants to them, and tremulous sun-rays long,
 Like golden arrows bright, fall from the sky
 Upon their mossy beds that warm spring day.

ANNA BISHARD, *Altoona, Pa.*

MARCH.

The stormy March has come at last,
 With wind, and cloud, and changing skies ;
 I hear the rushing of the blast
 That through the snowy valley flies.

Ah, passing few are they who speak,
 Wild, stormy month ! in praise of thee ;
 Yet, though the winds are loud and bleak,
 Thou art a welcome month to me.

For thou, to northern lands, again
 The glad and glorious sun dost bring,
 And thou hast joined the gentle train
 And wear'st the gentle name of spring.

And, in the reign of blast and storm,
 Smiles many a long, bright, sunny day,

When the changed winds are soft and warm,
 And heaven puts on the blue of May.

Then sing aloud the gushing rills
 In joy that they again are free,
 And, brightly leaping down the hills,
 Renew their journey to the sea.

The year's departing beauty hides
 Of wintry storms the sullen threat ;
 But in thy sternest frown abides
 A look of kindly promise yet.

Thou bring'st the hope of those calm skies,
 And that soft time of sunny showers,
 When the wide bloom, on earth that lies,
 Seems of a brighter world than ours.

—BRYANT.

FARFUGIUM GRANDE.

MR. VICK:—If the leopard cannot change his spots my Farfugium can. Is it for want of the heat and glow of the summer sun? or is it simply going back to first principles? Some years ago I owned one which, after blooming, dropped its "polka dot" attire and gradually assumed a costume of "solid" green. The plant I now report bloomed a year ago and commenced discarding the gayeties of plant-life soon after; which reminded me of my former experience, accompanied by a resolution to never let another bloom appear. The blossom is anything but beautiful, and indicates so plainly its plebeian origin that—now I come to think of it—perhaps it lays aside all pretensions to display from sheer humiliation, that with its first effort to perpetuate its kind it finds that "blood will tell."

However, Farfugium being a favorite plant with me, and this particular one very large and thrifty, I divided its roots, repotted them separately, and, in time, gave them plenty of summer sunshine and they seemed inclined to resume their pseudo-patrician attire. All but one I gave away, and do not know their after history. The one retained has two large, splendid leaves, (always to be turned whichever way I expect my visitors to sit—such a bother!) and the rest of the leaves are plain green, almost. I greatly covet a plant which shall have a score of such leaves as these two. Is such a result attainable?—MRS. M. B. B.

NEW POTATOES.

MR. EDITOR:—I am a great lover of a good Potato, and consequently try a good many promising sorts. Perhaps it will be of some interest to your readers to know the results of some of my trials last summer:

Chicago Market, for general culture, I believe to be one of the best varieties in cultivation. It is very productive, the tubers are large and uniform in size, and grow very compact in the hill, which makes them easy to harvest. For table use or marketing, this variety is all that can be desired.

Beauty of Hebron was introduced in 1878, and with me it ripens fully ten days earlier than the Rose, is equally as productive, and of excellent quality for table use. The skin is smooth, slightly tinged with pink around the eyes, but turning to pure white during the winter.

Dunmore is a very productive white-skinned variety, somewhat resembling the Burbank, but superior to that sort in both yield and quality.

St. Patrick I would mention as being medium early; the tubers are white, oblong, and very handsome. The peculiarity of this variety is

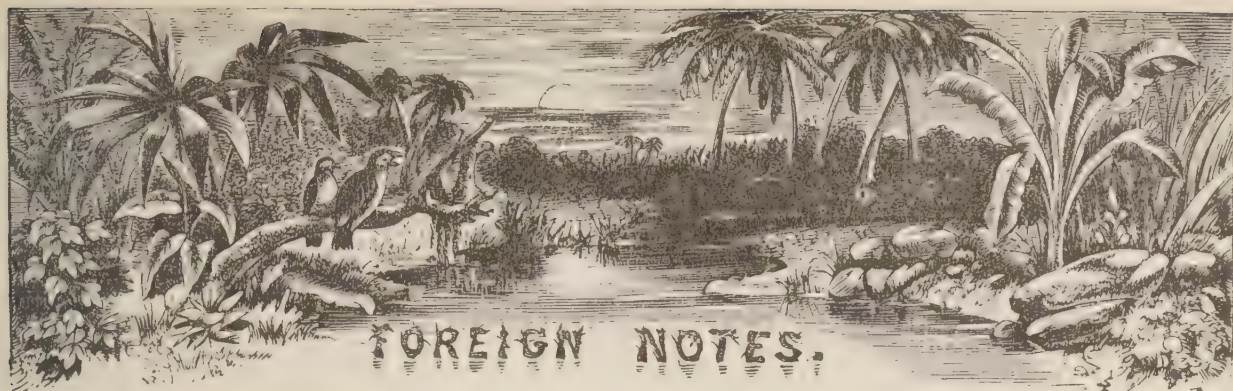
that it is a difficult matter to find a small Potato. Bliss' Improved Peachblow I call one of the best late varieties. It is a cross between the Jersey Peachblow and the Excelsior, the tubers resembling the former and the vines the latter variety. It is very productive, the tubers being round, of medium size, and very uniform. An excellent keeper. For table use or marketing it is fully equal to the Peachblow, while it will yield nearly double as much per acre.

GARDENS IN THE WINTER.

Every true gardener loves his garden all the year round. He prepares it carefully for the time when it becomes a memory and a hope; and it is not without attraction to him even in the bare aspects of winter. In New England it is necessary, not only to clear up the rubbish and leave a neat looking garden for the winter, but to protect many of the shrubs from the cold, the wind, and the alternate freezing and thawing which assail them, more or less, for five months of the year. We lately saw one which we enjoyed looking at, although the ice and snow lay all about it. The Rhododendrons, Altheas, some of the Roses, Forsythias, Halesias, the Fringe tree, and various other shrubs were protected by branches of common White Pine, easily procured from the woods, and answering better for the plants than a close covering. These Pine boughs tied around the shrubs were really ornamental, bearing so gracefully the burden of the snow, and waving their green tassels in triumph above it. A little care of this kind can make your gardens pretty to look at in winter, while the cheap protection is far better than the old pieces of matting or carpeting, which disfigure what they guard.—S. J. S., *Newburyport, Mass.*

A LARGE CASTOR BEAN.—This plant was raised from a seed of *Ricinus Borboniensis* planted about the middle of May in the open ground, and the measurements were taken in the latter part of September, giving about four and one-half months growth. The height of the stem was twelve and one-half feet, the total diameter of the plant was ten and one-half feet, the circumference of main stem nine inches, and the diameter of the largest leaf was thirty-eight inches. There were in all twenty branches and one hundred and thirty-three leaves.—C. C. C., *Van Buren, Pa.*

LARGE ONION.—An Indian boy, in the Indian Territory, to whom we sent some Onion seed last season, writes that he grew several that weighed four pounds each. This is equal to any we ever saw in Southern Europe.



JUMPING AT CONCLUSIONS.

We have little patience and less faith in dogmatical people, who arrive at a conclusion in some loose, slipshod way, and make that conclusion law and gospel, from which there can be no appeal. Even to the best of rules there seems to be very many exceptions. It has been said that pots must be porous to make healthy roots, but we have all seen glaring exceptions to this rule; and that some kinds of plants catch, eat, digest, and grow fat on insects, and to doubt this theory of some scientists was only an acknowledgment of ignorance. Not a bit of which do we believe. A correspondent of the *Journal of Horticulture* thus alludes to some of these theories:

“Amongst the things which were impressed upon me from my earliest days of horticulture was that all pots in which plants were to be grown must be porous. Various scientific reasons were adduced why this was absolutely necessary. I was a little shaken in this when I recollected the slate tubs which Mr. BECK, of Isleworth used; but all my early teachings were shattered when I saw this year the largest and healthiest collection of Auriculas I ever saw grown in highly-glazed pots. Now, the Auricula is not the easiest-grown plant, yet here it was flourishing under conditions that were pronounced fatal to it. ‘Oh, but you will not find the roots coming out to the sides.’ Yes, I did, and apparently enjoying their position quite as much as in unglazed pots. I leave on one side the advantage or otherwise of this mode of treatment; but this is incontestable, that the plants flourish as well by this treatment as in the ordinary way, and here again science is at fault.

“There was a great stir some time ago about carnivorous plants. We were assured that Dionæas, Sarracénias, Droseras, and such-like, were furnished with a wonderful mechanism by which flies were caught; the plants fed upon them, increased in vigor as human beings would on a meat diet, &c. This was denied by others; but as an ignoramus I should very much like to

state that in going over Mr. BULL’s wonderful establishment, a little while ago, I saw quantities of *Sarracenia flava* and *Drummondii*; the pitchers had indeed caught the bluebottles and other flies, but they had succumbed themselves, for they were all dead. Then, again, everyone who grows Heaths knows how the viscous varieties catch any number of flies—in fact, more than any of the so-called carnivorous plants, and I never heard that any one attributed any remarkable effect on the health from this strange diet.

“Amongst other plants of which I have written in this journal is the *Gladiolus*. Now here again I have been over and over again assured that I must not expect to grow it successfully in the same soil a second year; yet the most successful grower of them on a small scale I ever knew grew his for seven years on the same spot.

“These are a few of the instances which have occurred to me, and which have certainly led me to the conclusion that when anything is very dogmatically put forward as to be accepted on scientific grounds I must ‘bide a bit.’ The story is well known of Charles II puzzling his courtiers by asking why it was that a vessel of water weighed precisely the same when a two-pound fish was put into it that it did before. The savants set themselves to give reasons, until one of the court who did not lay claim to that title thought he would weigh it, and then he found the king had only been “poking fun” at them all. A little weighing and waiting will do no harm now-a-days.”

AMERICAN APPLES.—The *Journal of Horticulture* shows the enormous importations of Apples into England from America. One hundred and twenty-six thousand barrels were shipped from Montreal alone this season. This is more than double the number shipped from that port last year. Complaint is also made that Apples from the United States are not as well packed as the Canadian, and the barrels are smaller.

GEORGE ELIOT'S FUNERAL.

That wonderful author who is known to the reading world as George Eliot, and who gave to the world *Adam Bede*, *The Mill on the Floss*, &c., recently died in London, and a correspondent of *The Garden*, who attended her funeral, writes: "As the coffin was lifted from the hearse it appeared covered with masses of flowers, for the most part white, though here and there faint patches of color mingled with the snowy blossoms of the Eucharis, Azalea, Camellia, and Lily of the Valley. There were also large bouquets of Violets tied up with their own leaves, but this was not all. The crowds which lined the pathway which was cleared for the coffin and the train of mourners, kept pressing forward to touch the narrow house which contained all that was mortal of George Eliot. Many of the ladies and some men bore wreaths and nosegays which they laid tenderly by the side of the other floral tributes. The coffin was lowered and the bearers paused to receive these. In this way, when the procession was over and the honored dust had been laid in the vault, the grave presented the appearance of a pyramid of flowers. So was Fidele's sad grave 'sweetened.' Thus would the poet 'deck the laureate hearse of Lycidas.' The Romans in classic times scattered fragrant Rose-leaves over the tombs of those they loved. The custom will never 'wax old and vanish away.' So do English men and women mourn those who, amid the prayers and tears of kindred and friends, and the regrets of an admiring world, pass over to the majority."

WINTER IN EUROPE.—It is gratifying to know that our friends in Europe had, in the latter part of January, a real taste of winter, so that they can no longer tantalize us with reports of Daisies and Pansies and Phlox, and a hundred other flowers, blooming in their gardens in midwinter. The latest reports are from ten degrees of frost to ten below zero; trains blockaded with snow, navigation obstructed by ice, Oranges frozen on the trees, &c. Now, this is something like respectable winter weather. We send our congratulations, and hope all will enjoy a jolly sleigh-ride.

THE FAMEUSE, OR SNOW APPLE IN IRELAND.—A gentleman writes to *The Garden* that, seeing flattering descriptions of this Apple copied from American papers, he obtained some trees from Canada and planted them in Cawes. The fruit, however, was small and green, with a faint blush on the side facing the sun, showing the want of sun. The flesh was sweet and juicy.

CHRISTMAS FLOWER GARDEN.—A gentleman at Pensance names, in *The Garden*, about one hundred wild and garden flowers that were in bloom last Christmas day, among them we notice Alyssum, Antirrhinum, Daisies, Perennial Stocks, Mignonette, Pansies, Salvia splendens, Violets, and Virginia Stocks. Since Christmas, however, the weather has been unusually severe.

A correspondent of the *Gardeners' Chronicle*, at Falmouth, names 125 cultivated flowers in bloom on the 4th of January. Among them, Phlox Drummondii, Ageratum, Helichrysum, Tritoma, Ten-weeks Stock, Annual Larkspur, and French Marigold.

MR. J. J. MECHI.—This experimental farmer, about whose experiments the agricultural world, during the past fifteen or eighteen years, has read so much, recently died a bankrupt, having dissipated his large fortune, though, we believe, not mainly in farming. Business reverses were the principal cause. An effort is being made to raise a fund to provide for the widow and family. From the persons engaged in this work, we know it will be successful.

WORMS ON LAWNS.—Pulverized fresh lime, a correspondent of the *Gardeners' Chronicle* says, will effectually drive earth worms from lawns. The lime also kills moss, which is so troublesome on old lawns, often destroying large patches of Grass, and so sadly interfering with mowing. Mix the lime with twice its bulk of fine soil. Leached wood-ashes we have found better than soil for mixing with lime.

AURATUM LILIES.—Auratum Lilies are not more successful in Europe than here, and, some time since, a gentleman expressed the opinion, in one of the London journals, that it would be impossible to find a clump of Auratums that had been planted five years. To this challenge, however, there have been favorable responses. We can show a very good clump planted about eight years since.

POTATO SHOWS.—These are becoming very popular in England, for they are about the only exhibitions in which farmers and gardeners can show with equal chances of success. Of late we have noticed quite an interested crowd around the tables where Potatoes were shown at our agricultural exhibitions.

ASPARAGUS.—An Asparagus known as the Early Purple Argenteuil is being recommended by some English gardeners as earlier, better flavored, and quite as large as Conover's Colossal.



CODLING MOTH.

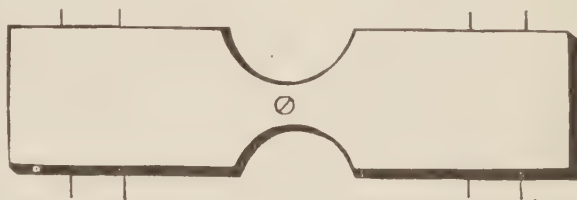
MR. VICK:—Out of a well-grown orchard of seventy trees we had scarcely a sound Apple; cause, codling moth. Can you tell us of any way of preventing its recurrence another year. Or can you put us in the way by which we can get the desired information?—E. E. C., *Independence, Iowa.*

The insect complained of is so well known by fruit-raisers that an extended description of it is unnecessary. The moth, for it is a night-flying insect, leaves its cocoon, in which it has passed the winter, about the time the Apple blossoms are falling, and when the young fruit has just formed. After a few days the female insect visits the little Apples, and, without puncturing the fruit, deposits its eggs on it at the small or blossom end, close by the calyx. In a few days the eggs hatch and the little worms burrow into the fruit and gradually eat and work their way into the core. Usually there is only one worm in an Apple. To get rid of its refuse, the worm eats a passage way through the side of the Apple, through which it is thrust. The injury sustained by the Apple causes it to drop prematurely. The worm continues to eat and increase in size until it has reached its maturity, which is about five weeks from the time it entered the fruit, and it then escapes through the hole in the side while the fruit is still hanging. Very little fruit falls to the ground with the worm in it.

As soon as the worm is out, it seeks a suitable spot to spin its cocoon, and usually this is in the crevices and under the loose layers of the bark of the tree. In about three weeks from the time the cocoon is finished the insect passes through its transformation, and a newly-fledged moth occupies the field ready to repeat the mischief of its progenitor. The insects of the second brood mostly remain in the cocoon stage during the following winter, but some of them are perfected, making the third race of moths in the season. The moths are not attracted by lights at night, the worms rarely drop with the fruit, and the only chance for destroying them is in the cocoon state.

Taking advantage of their habit of conceal-

ment about the bark of the tree, cloth, paper, and hay bands have been employed as traps. The bands are wound spirally about the body of the tree, and the worms crawl under and there spin their cocoons. The bands should be examined every fortnight during the summer, commencing about six weeks after the blossoms fall; all the cocoons found under the bands should be removed and destroyed, and the bands again placed around the trees. Mr. WIER, of Illinois, invented a trap, that any one is at liberty to use, that has proved more effectual and convenient in trapping and destroying this insect than any other device yet attempted. The construction and management of the trap may be comprehended most readily by reference to the illustrations here given.



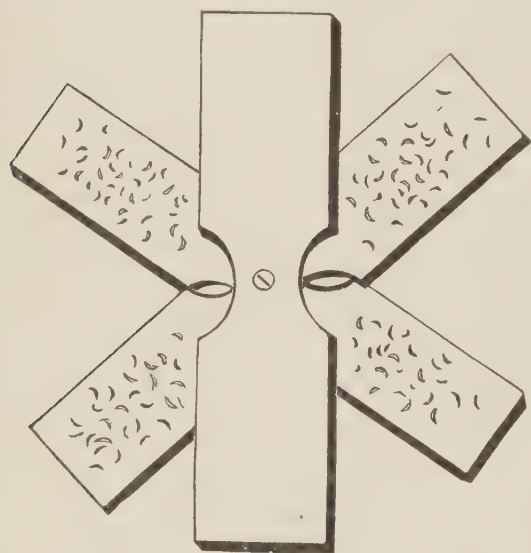
CODLING MOTH COCOON TRAP CLOSED.

The closed trap is shown with some straws placed between the parts, to separate them slightly, and they also serve as guides to the insects. The trap is made of some thin wood that is not sappy or gummy. Shingles that have been removed from an old roof are the best for the purpose, but, in their absence, any other thin, dry wood may be used. About eighteen or twenty inches is a good length, and the three pieces of which each trap is formed are of a little different width, the narrowest being undermost and the others overlapping in order to effect perfect concealment and protection. Each piece is hollowed out on the sides at the middle, so as expose the surfaces as much as possible when the trap is open. The whole is held together by a screw through the middle, and the trap, placed upright, is fastened to the tree by means of the same screw. Several of the traps should be placed on each tree, and

this work may be done any time in the winter or spring.

As in the case of the bands, these traps will need attention in about forty days after the blossoms begin to fall. An old tin pan bent in one side, and that will fit to the body of a tree, is the best vessel in which to collect the cocoons and chrysalides. Placing the tin pan underneath, the trap should first be turned half way around, to collect the insects between it and the tree-trunk, and then each side turned separately and all the insects removed and afterwards destroyed. The traps should be opened and cleaned at least three times during the season, at intervals of two weeks.

There is no real loss in the fruit destroyed by the first brood of moths, as that is only a



CODLING MOTH COCOON TRAP OPEN.

thinning advantageous to the remaining crop, if it can be saved in perfect condition; it is the later broods that do the damage, and, to prevent them, the destruction of the larvæ of the first brood should be thorough and complete. Comparative trials have shown that the wooden trap will catch many times more insects than any other trap known, and that the work required is far less. Probably nothing that can be done will result in the entire destruction of this pest, but it can be kept under comparatively easy. A person can make two or three hundred of the wooden traps in a day, and a day's work in attendance destroying insects is from four hundred to eight hundred traps. In connection with the trap another agent has been employed that has proved of great benefit, and that is fine, dry, air-slacked lime. This substance is sprinkled all over the trees just at the time the blossoms are dropping. At that time the little fruits are in an upright position and the lime powder settles in the hollow about the calyx, and thus prevents the moth from depositing its eggs.

This is a subject of great importance to all those who raise Apples and Pears, and in no way can their interests be better served than by careful attention to it.

EUONYMUS JAPONICUS.

I send you herewith some leaves of a shrub, and would ask if you can tell me what it is. It is about five feet high, and has never blossomed. It stands fully exposed on a rock mound that is two feet high, and has never received any protection, for the reason that I did not care whether it lived or died, since it never blossomed. When we have had parties or festivals, I have used the leaves for trimming loaves of cake and the like, for the leaves are green, bright, and glossy, and look rather pretty on the frosting. The leaves are on the plant all winter, and do not fall off; the same leaves are on the plant now that were on it last winter, excepting a few that turned yellow and dropped.—F. H., *Naugatuck, Conn.*

The above inquiry was received early in the winter, and we are now somewhat curious to know if the shrub has retained its foliage during the severe weather of the past two or three months. The *Euonymus Japonicus*, which is the plant here described, is a very beautiful shrub, of erect habit and with a profusion of handsome, glossy leaves. At Philadelphia, and farther south, the plant is hardy, but we were not aware of its being so in Connecticut. Perhaps the two mild winters we have had previous to this one have been exceptionally favorable, and we may not hear so good an account of the plant at the north hereafter. We never knew of any plant being so widely disseminated under a false name as this has been. There are probably to-day thousands of persons in this country having this plant in their possession with the idea that it is a *Camellia*, and inquiries are constantly being made about its flowering, and in relation to grafting it. We did what we could to remove this impression by publishing, some years since, the facts in relation to the plant, together with an illustration of a branch and leaves. The plant is cultivated exclusively for its appearance, as it seldom blooms, and, when it does, the flowers are small and inconspicuous. As a foliage plant, we admire it very much. There is a variety of it with the leaves margined with yellow, called *aureus*, and another, *argenteus*, with white-margined leaves; these have the habit of growth of the species, and a trio of the different kinds is desirable for the window or the greenhouse. This *Euonymus* adapts itself to the conditions of house-culture, and, wherever it is hardy, it must be a gem in the garden.

DUC VAN THOL TULIPS.—A lady of Cincinnati writes us, February 9th: "This morning my Duc Van Thol Tulips are beautiful, I don't know why more of the flower lovers don't try them for house-culture."

FLOWER BEDS.

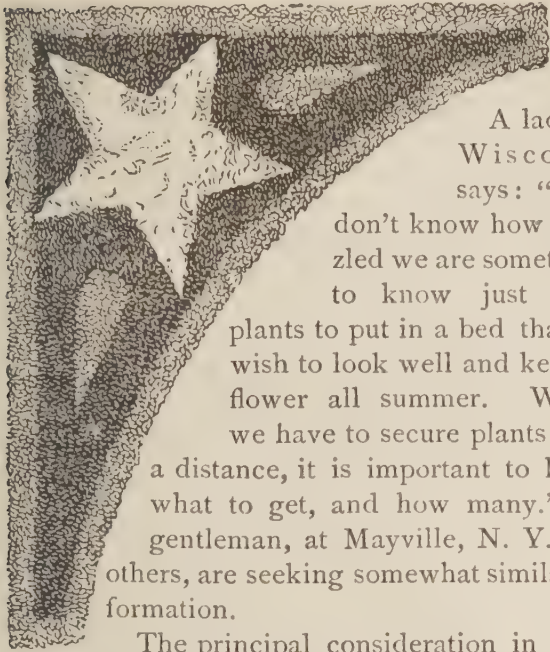


FIG. 1.

A lady in Wisconsin says: "You don't know how puzzled we are sometimes to know just what plants to put in a bed that we wish to look well and keep in flower all summer. Where we have to secure plants from a distance, it is important to know what to get, and how many." A gentleman, at Mayville, N. Y., and others, are seeking somewhat similar information.

The principal consideration in making flower beds is to procure plants of nearly uniform height, and those that will keep in flower during the whole season, for a failure in either respect will mar if not ruin the bed. The plants must be set so close together that, when they have attained their growth, the whole bed will be covered without a break. Our artist, who loves plants and birds, and is something of a gardener, made drawings of beds in his grounds, last summer, with a list of the plants they contained, and these we give, as they will, in a measure, answer the inquiries of our correspondents. In the next number we will treat this matter more at length, and give other illustrations. The system of bedding, it is claimed, is artificial, and not in good taste, which doubtless is true; but tastes differ and change constantly. It is now thought in good taste to imitate and admire the productions of Japanese art by those who, a few years ago, ridiculed the poor, benighted Japs.

Fig. 1. Star of white Verbenas; drops, scarlet Verbenas; the rest of the bed of blue Verbenas; margin, golden Feverfew.

Fig. 2. Center, Oxalis Deppii; circle, white Sweet Alyssum; four wings, Coleus Hero; remainder of the bed, Striped Petunias; margin, Rose-flowered Geraniums.

Fig. 3. Center, *Coleus Verschafeltii*, surrounded with *Tagetes pumila*; a margin of *Alternanthera*.

Fig. 4. Oval of white Phlox; bed of scarlet Phlox. This is a simple, cheap bed, that will give abundance of bloom.

Fig. 5. Center, white Candytuft, surrounded with *Geranium Mrs. Vick*; margin of *Coleus Hero*.

Fig. 6. Cross of scarlet Geraniums; four inner corners, white Candytuft; circle of *Coleus Hero*, and outer corners, *Coleus Shah*.

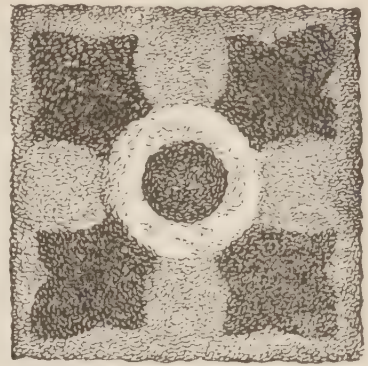


FIG. 2.

ARISTOLOCHIA SIPHO.

MR. JAMES VICK:—In my article on the *Aristolochia*, which was published in the February number of the MAGAZINE, I made the following remarks: "My one plant is trained to a pillar, and the flowers soon become covered by the large leaves; this may be one reason why it does not fruit more freely, for I have been informed by one of our most eminent horticulturists that he has seen a quantity of fruit on a plant trained to a trellis." As these remarks seem to call for an explanation, I desire to state that, owing to the peculiar construction of the flower, it requires the agency of insects to effect fertilization, and, where the plant is covered with the large leaves, this is not very likely to occur, as the flowers are hidden from them; while, if grown on an arbor, or large trellis, the flowers are fully exposed to their agency. If any of the readers of the MAGAZINE have had any experience in regard to the fruiting of the *Aristolochia*, I should like to hear from them.—C. E. P., *Queens, L. I.*

ONION CROP.—On an acre of good prairie soil, a gentleman, of Iowa, writes that he grew 540 bushels of good, salable Onions, for which he was offered fifty cents per bushel and sold, while afterwards he could have obtained \$1.

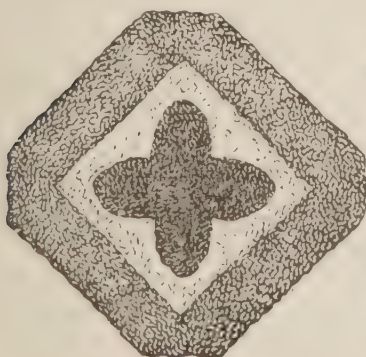


FIG. 3.



FIG. 4.



FIG. 5.

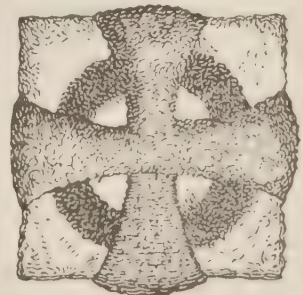


FIG. 6.

THE GARDEN IN-DOORS AND OUT.

MR. VICK :—Will you please answer the following :

1. What is the proper treatment for a Lemon tree growing in the house ?
2. What is the best way of raising Celeriac ?
3. Will a Caladium do as well set in the same place every year ?
4. Would you recommend the commercial fertilizers for flower gardens ?
5. Are the commercial fertilizers good for Onions and Cabbage ?
6. What is the cause of Onion rust, and what will prevent it ?—A SUBSCRIBER.

1. The Lemon, like the Orange, will submit to quite a variety of conditions, and to a certain extent adapt itself to them, and thrive. The soil should be strong and rich; the plant exposed as fully as possible to the light; in the early part of winter a temperature of 45° to 55° is sufficient, and then care should be used not to water too freely or the soil will become sodden; in spring and summer, when growth is more active and the evaporation of the leaves is far greater, it should be supplied more freely with water. At all times the leaves should be kept free from dust by frequent syringing, sprinkling, or spraying the foliage; and a constant watch must be kept for mealy-bug and scale insect, and these depredators destroyed when discovered. Ventilation should frequently be given when the weather is favorable.

2. The seed of Celeriac should be sown early in spring, under glass or in a warm, sheltered spot in the garden, and the seedlings afterwards



CELERIAC.

transplanted, like Celery plants, into a rich bed, where they will become strong before their final removal. When the plants are four or five inches high, they may be taken up, and the lit-

tle side shoots, or suckers, and the lateral fibers on the roots removed, and then be set in rows in rich, mellow soil. The plants should be set not deeper than they previously stood.

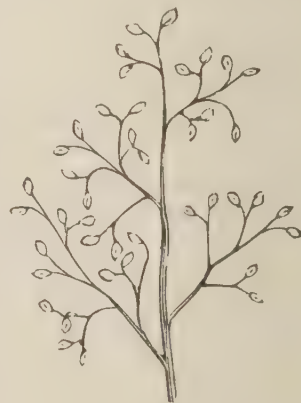
No particular care is required in the cultivation; in case of drouth, water should be liberally supplied. When the bulbs are pretty well grown the soil should be drawn up over them to blanch them and render the flesh crisp and tender. They can be used in the fall as wanted, and, in winter, may be stored away in the cellar, packed in sand.

3. We have known *Caladium esculentum* to thrive well in the same place for several years. The soil should be mellow and rich, and then, if the plant is supplied abundantly with water when the hot weather comes, there is little fear that it will not respond to the attention it receives.

4 and 5. We have used some commercial fertilizers with good advantage, both for flowers and vegetables.

6. Onion rust is a minute fungus that develops and spreads on young Onion plants. It is known scientifically as *Peronospora Schleidenianum* of DE BARY, or *P. destructor* of BERKELEY, and is a neighboring species of the same genus of fungi as that which causes the Potato rot, which is *P. infestans*, and the one that mildews our Grape vines, which is *P. viticola*. Other species infest Pea vines and Turnips, Lettuce and other plants.

The Onion rust, when seen under a high magnifying power, presents an appearance of branching threads, as in the illustration here given. The threads, which are greyish, form large patches or blotches on the leaves and sometimes cover them and eventually stop the growth of the plants entirely, and cause their decay. The root-like fibers, or mycelium, of this fungus pass through the cuticle of the leaf and run through the intercellular spaces and through the cells. The threads are borne on the mycelium, and are thrown up as it spreads; it is, therefore, a minute creeping plant within the tissues of the plant on which it lives, sending up innumerable erect stems above the surface, each of which present a tree-like appearance. The ends of the little branches of the threads bear oval bodies on their tips; these are spores capable of reproducing the plant. But the fungus is not dependent alone



upon this mode of reproduction, as it multiplies by any part of its mycelium in the same manner as Mushroom spawn.

The work of COOKE & BERKELY on Fungi, one of the International Scientific Series, says: "In the species of *Peronospora* that inhabit perennial plants, or annual plants that last through the winter, the mycelium hidden in the tissues of the foster-plant lasts with it. In the spring it recommences vegetation, and emits its branches into the newly-formed organs of its host, there to fructify." As the mycelium of the Potato fungus ramifies through all parts of the plant and enters the tubers and thus is propagated the following year, so this fungus sends its root-fibers through the leaves and into the bulb of the Onion. Here it may remain undeveloped until planted out the next spring, and then, when the conditions are right, it springs into growth. Seasons of great heat and humidity are especially favorable for its development and rapid spread. We have never heard of its prevalence to any great extent in this country.

No remedy has ever been found to check the ravages of this fungus when it has once found a lodgement upon a plant. To prevent its spread, all affected plants, as soon as perceived, should be pulled and burned.

Plants from seed, and at a distance from others of the kind, will be less liable to attack than those raised from sets. All plants of the Onion tribe are liable to be affected, Leeks, Garlic, and even those kinds that are sometimes cultivated in the flower garden for the beauty of their bloom.

EXTRACTS FROM AN ENGLISH LETTER.

MR. VICK :—Your spring catalogue just to hand, and it is a gem. The cover is quite a work of art. So splendid an effect with two workings!

I like your portrait in the Catalogue and think it well executed. I have it in a frame now. I was glad to see *Linum perenne* in the colored plate; it brings pleasant remembrances of summer rambles to me. We have quite a lot of it growing in a hedge at the foot of a hill about three miles from our town.

We are just feeling the cold wave which you have had in America. At the present time the thermometer stands at 19° Fahrenheit, and yesterday it was as low as 14°. Fortunately there is about a foot of snow on the ground, which will protect the roots of tender plants. I have my own difficulty in keeping the frost from my tender *Trichomanes* and *Hymenophyllums*. Do you have any of these kinds of Ferns? I would like to exchange British flowering-plants or Ferns for exotic *Trichomanes* and *Hymenophyllums*.—G. W. F., *Sunderland, Eng.*

Our friend is making an application in the wrong country for the kind of Ferns mentioned. We have no *Hymenophyllums* here, and only one species of *Trichomanes*; that is found in the Southern States, and only in a few places.

AN ODD PRIMROSE AND A GOOD SOCIETY.

MR. VICK :—Your considerate kindness and practical common sense in answering the many questions that come to you has prompted me to join your army of questioners. A friend of mine has, in her conservatory, a Chinese Primrose. It stands in a partially shaded place, and the foliage is very fine and thrifty, but the stems that should bear the beautiful flower-clusters bear only the empty calyx, and not a sign of the corolla appears. I have looked through the volumes of your MAGAZINE and find no parallel case, though I found several articles on the Chinese Primrose and *Primulas*, and I am curious to know if that is characteristic of the *Primula*, or just a freak of this one.

In November, 1879, you published an account of a botanical club at Syracuse, and, in closing, called for reports from similar organizations. In 1879 a club was formed in this place for the study of natural history, including three sections: section A, geology and mineralogy; section B, botany; section C, zoology. Our regular meetings, held once a month in the academy school building, where we carried our specimens and reported our work, were quite well attended, and interesting to lovers of natural history. We kept up our meetings through the winter, the members writing papers on the different branches of our work. Aside from this, occasional meetings of the sections, as they chose, either for instruction or consultation, were appointed at any time, either by a vote of the members or at the option of the chairman of the section. The first year we did very well. Section A held several interesting and instructive meetings, and some minerals were collected; section B secured, pressed, mounted and labeled about one hundred and twenty-five botanical specimens, and section C captured, preserved and labeled nearly all the varieties of snakes and turtles that are in our township, beside quite a collection of moths and butterflies, and a few other things, birds, beetles, lizards, &c. But the second year, that of 1880, we fell short in our conquests, some of best working members went to the mountains, some to the sea, some stayed at home and were sick—we were scattered or disabled, so the enthusiasm abated, and that during our harvest time.

But "we still live" and are at present having a room fitted up with cases, shelves and a work-table; this is for the storing of our specimens and as a place for members to go and work, and have the assistance of others, if they need or wish it. The museum is for the benefit of any one, member or not, who may wish to consult it for reference or instruction. Our club is not for any particular class or age, but includes ministers, doctors, lawyers, professors, teachers, merchants, clerks, mechanics and farmers, with their wives, sons and daughters.

I have given a rather detailed account, knowing your interest, and thinking perhaps you might be able to suggest something that would be of service to us and aid us in keeping up our zeal through the coming year, and we should be pleased to receive any such suggestions or advice. I have written to Mrs. MYERS, of the Syracuse club, and hope to hear from them:—EVA E. NEWELL, Chairman Field and Forest Club, *Southington, Conn.*

This letter, when received, we read with lively pleasure. The formation and general support of a society like the one here described, in every fair sized village, would do much to relieve the ennui of some, and provide both recreation and instruction to others. It would stimulate a desire for improvement and advancement in all the affairs of the community, promote good fellowship, and create and foster a genuine interest in nature that would con-

duce to the health of body and soul, and brighten life to many to whom it may now appear dull. It is scarcely necessary to offer any suggestions, as the united talent of the society is fully competent to direct it. We will offer one that now occurs to us, at the risk of its being already in practice, and that is, in making collections of any kind, plants, insects, minerals, or animals, to secure several of the same species. The duplicates can be exchanged with other societies, or with individuals at a distance who may desire to obtain them and will furnish others for them. In this way a great variety of specimens may be obtained that are not procurable in any circumscribed locality.

The Chinese Primrose, first mentioned, is an exceptional case; we are not informed whether there are stamens and pistils produced in connection with the calyx, or whether these, also, are suppressed, for this is what botanists call a suppression of the parts. The plant will be of no use for blooming, and the best that can be done with it is to devote it to the cause of science by pressing, mounting, and preserving it among the other representatives of the vegetable kingdom in the society's collection.

LILIES FOR BALCONY PLANTS.

1. Will you kindly tell me what is meant by "pricking off" or "out" young plants?

2. Also, is it harmful to paint or varnish plant pots because of rendering them less porous?

3. If from your list of unnamed *Gladiolus* you will sell a half dozen at dozen rates, as I desire to send for a few summer-flowering bulbs.

4. Can I plant Lily bulbs in pots in the house, as soon as it would be safe to send for them, and expect them to bloom this coming summer? "No foot of land do I possess," but I want some Lilies very much, if they can be raised in pots on balconies. I have two wide, long balconies, east and west. If Lilies, planted out this spring, will not bloom this summer, I would rather wait until next fall before getting them.—MRS. E. M. S., *Hart, Mich.*

"Pricking off" is a term used by gardeners to denote the operation of the first shift, or transplanting, of young seedling plants.

2. It is an opinion of gardeners that was long held unquestioned that a plant could not thrive in a pot not porous, consequently, that painted, varnished, or glazed pots were unsuitable for such use. Experience has shown this opinion to be unfounded, and that, under some circumstances, a pot is all the better for not being porous.

3. We are always willing to supply our customers with whatever quantity, however small, of anything we have to dispose of, without increase of rate if possible, as it is in this case.

4. The best results from Lilies in pots may be expected from bulbs potted in the fall and kept in a low temperature, above freezing, so

that abundance of roots shall be made before leaf-growth commences. But strong bulbs planted in the spring, of *Japonicum*, *longiflorum*, *auratum*, and *speciosum album*, if properly managed, may confidently be expected to bloom. The bulbs should be procured as early as possible, and potted deep, in large, roomy pots, in a strong, rich soil, and kept in a cool, shady place for several weeks, until roots have formed; then they may be brought out to the full light and watered as the increase of foliage shall demand it. One of the dangers will be allowing the pots to become dry. In order to guard against such an occurrence, they should be set in a box deeper than their height and the space around them filled with moss, with a covering of the same material over the surface. Treated in this way, Lilies will prove satisfactory balcony plants.

THRIPS ON TEA ROSES.

MR. JAMES VICK:—I have a collection of Tea Roses which I plant out in the garden during the summer, removing them to the cellar after the first hard frost, where they remain till January, when I place them in a cool, upper room, in windows having a southern exposure. They very soon put out foliage and flower-buds, with rapid and vigorous growth. While in the garden they are infested with myriads of white thrips. To destroy their eggs, or larvæ, (I am entirely unacquainted with the habits of the insect,) I wash the naked stalks of the plants, when I take them from the cellar, with kerosene and soap. But as soon as the leaves are the size of a pea, they are covered with countless numbers of young thrips. I have tried tobacco and insect powder, with no better results. I have spent hours in hand-picking, but I injure more tender foliage than insects. Can you suggest a remedy? If not, the present prospect seems that I must succumb to the enemy, and vanish my favorite plants from my window garden.—MRS. J. A., *Newton.*

There is no question about the destruction of thrips. Tobacco fumes, the same as for green-fly, will surely kill them, though not so readily; after once smoking there should be a repetition of the operation in two or three days. After the smoking, the plants should always be syringed with clear water, thrown on as forcibly as possible. Tobacco-water, also, will destroy the insects.

CACTUS—SEA ONIONS.

What is the best soil for the different kinds of Cactus? What is the proper or botanical name for the Sea Onion? Some here call it the Scotch Lily; are either of these the proper names?—MRS. M. M. I., *Menominee, Mich.*

If leaf-mold and sand be mixed together in equal quantities, and to any amount of this mixture the same quantity of good, fresh loam be added, and the whole well commingled, a soil will be formed of the most suitable sort for all kinds of Cactus.

The Sea Onion is a Squill, botanically, *Scilla maritima*.

ALFALFA AND LUCERNE.

Will you please state in your MAGAZINE whether Lucerne and Alfalfa are the same thing. I see that seedsmen, some of them at least, advertise it under both names. I believe it is also called Chilian Clover. Is there a difference, or not? Is it a valuable crop?—J. M. B.

Alfalfa and Lucerne are the same thing, *Medicago sativa*. We have grown plants from the California and from the European seed, and



have seen crops growing both in Europe and California, and think that there is perhaps a little difference in favor of the California, or South American, seed. Having been grown south for many years a change may have taken place in its habit, as is often the case. It seems to be of stronger growth, and, it is claimed, roots deeper, and consequently endures drouth better. When well cared for, it is a valuable crop; but, when allowed to struggle against weeds and general neglect, is entirely useless.

LIQUID MANURE.

In one of your issues of last year, manure water is mentioned as used in London from the cow-stables. Please say how stale or old this should be before it is applied to the plants, and if it can be used every week for more than three or four weeks without intermission.—W. H. H., *Philadelphia, Pa.*

Fresh urine used on tender plants will scorch or burn them; this is on account of the caustic ammonia in it. Ammonia is one of the most important and the most valuable of the principles of manure, and when combined with other substances loses its alkaline character. While urine is undergoing decomposition, or putrefaction, the ammonia it contains forms a chemical union with carbonic acid, and in this condition it is no longer caustic. It is the practice, therefore, where the drainage of cow-stables, and

other urine, is used as liquid manure, to allow it to decompose. In warm weather, in summer, a period of four to six weeks is necessary for complete fermentation, and in winter a longer time. When the process of putrefaction is ended it may be determined by stirring the liquid; if no scum forms on the surface, decomposition is complete.

It has been proved that it is an advantage to dilute fresh urine with an equal quantity of water before decomposition, for the reason that water absorbs the ammonia and prevents its passing off in a gaseous state, and for the further reason that valuable gases generated in the process of fermentation are also absorbed by the water. Carefully conducted experiments have shown that urine thus diluted contains nearly four times as much ammonia after fermentation as the same amount fermented without dilution.

How long liquid manure may be profitably applied depends upon the nature of the crop; it is of benefit while plants are growing strongly, but during the ripening process is unnecessary.

SWEET POTATOES.

MR. VICK:—Have you any instructions for raising Sweet Potatoes in hot-beds? If not, can you tell us how it is done?—H. S., *Walnut, Iowa.*

Having prepared a good hot-bed with a rich, fine soil, early in spring, sound, smooth tubers are selected and laid evenly over the surface of the bed, an inch or two apart, and then covered with three or four inches of fine soil. Here the Potatoes will sprout, and when these have made a few inches in growth they are carefully separated from the tubers. Three or four crops of slips or sprouts may usually be taken from one set of tubers. The cultivator must manage his hot-beds so as to bring the slips along to a proper size for removal at a time when frosts are no longer feared, as they should be transplanted to rows, in the field where they are to grow, immediately after removal from the bed.

The plants require a warm, mellow, and rich soil, and may be set in rows four feet apart, and fifteen to eighteen inches apart in the rows, or in hills four or five feet apart each way, with three plants in each hill. Good cultivation during summer will ensure a fair crop.

A JANUARY FLOWER GARDEN.—A lady of San Francisco, Cal., on the 31st of January, wrote, "I picked an elegant and very large bouquet from my garden to-day. As a rule, Annuals do not flourish here. Fuchsias, Geraniums, Roses, Sweet Peas, Violets, Pansies, Honeysuckles, and Mignonette are now in bloom."

A BOUQUET OF WINTER FLOWERS.

MR. VICK :—I send you with this a bouquet of my winter flowers, and I think if you could see my bouquet, with its bright colors and fragrance, instead of its representation on paper, you would think it pretty good. You will see



that I have Fuchsias, Geraniums, Abutilons, and a good many choice flowers. I have a little conservatory, partitioned off from the living-room, and warmed by hot water pipes from the kitchen range. My plants are a cheap luxury and a delight.—W.

MANURE FOR THE GARDEN—HYACINTHS.

MR. VICK :—I want to enrich the soil where my ever-blooming Roses are, and make them do all they can this year, and, as you answer the most simple questions with so much kindness and patience, will you please tell me in the next number of the MAGAZINE—

1. When manure is put in a heap to decompose, how long will it take to be fit for use? If liquid, how much must be put in a barrel to make it the right strength? Will it do to let liquid manure fall on a plant, or must it just be put on the ground around it?

2. Does it injure Hyacinth bulbs to pull the flower, or will the bulbs be any better to let the flowers stay on until they fade?—MRS. E. RICHARDSON, *Troupe, Tex.*

Fresh stable manure placed in large piles, or heaps, out of doors, where it will be exposed to the rains, and carefully turned two or three times, will be in its best condition to be applied to crops in about three or four months. If the prospect is that a heap of manure when formed will not immediately, or soon, receive a wetting from rain, then water should be given artificially until the mass is saturated, as it will burn if left dry.

Liquid manure may be made from different materials, and how much of these to use to a given quantity depends upon the composition and strength of the material employed. It may consist of the drainage of stables, or barn-yards, or it may be the soakings of stable or cow manure, or hen manure, guano, or night-soil may be used. The strength of the solution can only be determined in practice by trial; to be safe, it should have the appearance of weak tea. It may be used stronger on trees and shrubs that have their roots deep in the ground than on smaller plants, or plants in pots; but it is always best to err on the safe side, and to use a weak liquid often, rather than to attempt to afford the plants all they may need at once. The liquid should be applied to the soil, and not to the plant, except when used on grass land or on low-growing crops, and then must be employed quite dilute.

The real strength, or composition, of any particular sample of liquid manure can only be determined by chemical analysis.

Hyacinth bulbs will be stronger if the flowers are cut when expanded, than if allowed to wither on the plants. The production of seed is the highest effort of the plant.

FLOWERS AND FRUITS IN TEXAS.

MR. VICK :—In several issues of your MAGAZINE you have mentioned the Gloxinia, its habits, and propagation by leaf, &c. I have bulbs of this flower which are five inches in diameter. Can they be divided? Please give all the information that you can. Are the Gesnerias as desirable as the Gloxinia?

I have had the *Daphne odora*, *Camellias*, and *Magnolia fuscata* for years, have tried to propagate them, and failed in every effort. Will you be so kind as to give me some information in regard to growing them?

Nearly all kinds of flowers do well in this part of the world; indeed, Eastern Texas will compare favorably with any country for fruits, flowers and vegetables. Peaches arrive at great perfection here; I have never seen them anywhere so fine in appearance and so luscious in quality. In some parts of Texas fruits and flowers have not proved a success.

I have a very large pit, which is covered with heavy cloth well oiled. My flowers have been well preserved until this winter. On the 29th of December we had a very severe freeze; the cold crept in and bit the leaves of the plants, but nothing was killed except some *Coleus* plants. Another winter I shall use a stove, or lamp, and then my pets will be quite comfortable.—MRS. C. E. D., *Crockett, Texas.*

The Gloxinia is propagated only by seeds and leaf-cuttings, and may be rapidly multiplied by these methods.

Gesnerias are winter-blooming plants, and much less cultivated than Gloxinias, though some varieties of them are very handsome.

Daphne odora, the *Camellia*, and *Magnolia fuscata*, may be all propagated by cuttings, or by grafting upon young stocks—the *Daphne* upon *Daphne Laureola*, and *Camellia* upon

young *Camellia* seedlings, and *Magnolia fuscata* upon *M. obovata* as a stock.

The severe freeze mentioned will be quite amusing to our northern readers, most of whom have experienced a cold indicated by the mercury at 10° to 20° below zero.

COLD WEATHER AND HOUSE PLANTS.

What ruin has been wrought in many a home by the severe cold which came so suddenly upon us a few weeks since. A lady writes me from Kansas that all her valued plants were lost in one night, except those in a pit. Another writes the same from South Carolina, and that her neighbors suffered also. Many of my choicest plants were blighted, but the joy that so many were left unharmed exceeded the sorrow at my loss.

Primroses and *Cyclamens* that had long been in bloom were touched by the frost, but they survive and will recover. *Cyclamen giganteum*, in another room, where nothing was harmed, has just opened two lovely blossoms, much larger than my *persicum*. I do think this is a very desirable novelty. I have never had the *Cyclamen* until last autumn. I have four in bud and bloom.

My large bulb-box, which was packed eight weeks ago and put in the cellar, was brought up and placed on a window shelf a few days ago. It contains *Hyacinths* of several sorts, the finest varieties of named *Crocus*, *Ranunculus*, *Anemone*, *Snowdrop*, *Snowflake*, *Scilla*, and *Polyanthus*, from which I am expecting a rich harvest of flowers next month. Quite a number have thrown up leaves to take an observation.

In boxes and pans in the cellar are other bulbs, buried at a later period, and these will take their place by-and-by in the bulb box, when, after flowering, some of its contents are removed. Some, to me unknown varieties, will be planted later, and thus I expect to have for several months, even until those in the borders reveal their beauties, a succession of lovely flowers. I never felt such a deep interest in bulbs before; never realized, as of late, their great value at a season when few flowers adorn our window garden. They are so easy of culture, and so reliable, why have we not appreciated them more? You have sought to impress it on your readers, again and again, but they neglect to give due heed.—MRS. M. D. W.

SPRING WORK.—The present month will be an active one with the gardener everywhere. Seed-sowing of great variety is now demanded, and the thoughtful cultivator will have his head and his hands full to prepare for spring.

DOUBLE ZINNIA.

MR. EDITOR :—You have of course noticed, in your fields of *Zinnias*, a good deal of difference in habit. The old single *Zinnia* was not only worthless as a flower, but the plant was loose and quite unsightly. Since attention has been given to the improvement of this flower,



and it has become one of the most popular of our common showy, hardy flowers, the habit of the plant has greatly improved, and I have grown many plants worthy of being potted and placed on exhibition at a first-class horticultural show, being small and compact. I send you an exact drawing of a plant raised by me last summer. It was so handsome that I made a colored drawing of it, a copy of which I send you.—M. T.

ITALIAN ONIONS.

When in the south of Europe, in 1871, we saw and admired the great Italian Onions, larger than Apples and almost as mild. We thought if such Onions could be grown in the warm parts of Europe, why not in our Southern States. Having ordered some seed, in the winter and early spring of 1872 we sent it, for trial, to hundreds of people south, and the reports were almost unanimously favorable to the new Onions. Since then we have had this seed grown for us in Italy, and supplied the south quite largely. The following, from Dr. G. A. HEATH, of Florida, is one of many similar reports from the far south: "Your Italian Onions will prove a success with us, I hope. I planted the Giant Rocca along side of the Bermuda, both receiving the same treatment, and to-day the Italians are three to four times as large as the Bermudas. I believe the Italians are going to be the thing here; we have always been obliged to raise the Bermudas or none."

VARIOUS INQUIRIES.

S. D. enquires "if there is any remedy for the scales that come on the under side of the leaves of Ferns." Fern fronds are quite subject to a scale insect, and require to be looked after occasionally and the insect destroyed. With a few plants, the best way to do this is to take a little hair brush and, dipping it in either alcohol or kerosene oil, touch each insect with the fluid. After this syringe the plants.

Angle worms are troublesome in a bed where there are Pæonies, Lilies, Iris, Tulips and Lily of the Valley. Mrs. H. J. R. wishes to know if a dressing of salt and lime to destroy the worms would not injure the roots of the plants. In this case, we should use lime-water freely, early in the spring when the ground is dry. First prepare enough lime-water to soak the bed; draw the soil up around the edge, so as to make a basin of the bed, then flood it with lime-water three or four inches deep.

Mrs. L. L. G. writes us that she has "a tall columnar Cactus, four and a half feet high, that is eight years old and has never blossomed," and wishes to know how to treat it so that it will bloom. Apparently this plant is in good condition. We should allow it to become pot-bound, as, possibly, it has not been; this will have the tendency to cause it to bloom.

A. F. asks us to give some particulars about Cactus plants, saying that he has "had some for six years that were full of buds and flowers" when he obtained them, "but have never bloomed since." In this case we can only give general directions for the treatment the plants of the Cactus family require. In winter, the plants should be kept dry in a temperature of about 50°. In spring, the plants may be given a little water, which should be increased as growth progresses, and during the season of greatest activity should be freely supplied. A free exposure to the sun is particularly desirable. Some plunge the pots in a hot-bed and let them remain there for three or four months during spring and summer. Others plunge the pots in the open ground, where the plants will have the full benefit of the sun to ripen the new growth thoroughly. The plants are removed to the house before frosts. Thus it will be seen that the plants require a similar treatment to that of their wild state—great alternations of heat and cold, drought and moisture. The worst treatment they could have would be, to keep them always as house plants, without exposing them fully to the sun in summer.

M. F. G., of Woburn, Mass., enquires about *Solanum jasminoides*, Passion Flower, and Ivy-leaved Geranium, and wishes to know if they should be kept in pots through the summer, and

if they need the full sunlight. They cannot have too much light. Ivy-leaved Geranium is an excellent basket and vase plant, and there is no more effective way of raising it. A single plant will fill a basket. *Passiflora cœrulea* may be raised in the open ground by planting in a rich place early in spring and protecting it from late frosts; or the plant may be kept in pot and be plunged in the open border during summer. *Solanum jasminoides* intended for winter-blooming may be best brought along during summer by keeping in the pot, which should be plunged outside with its rim below the soil. Plants in pots in the ground should be carefully looked after and watered, as they will be dry much sooner than those planted out.

BARBED-WIRE FENCES.

WM. HORNE, doctor of medicine and veterinary surgeon, of Rock county, Wisconsin, discountenances the use of barbed-wire for fences. He says: "I have had horses under my observation so frightfully mangled and torn as to be sickening to look upon. Some of our very best colts have been utterly ruined for life by being torn by this terrible fence." Again he states: "I have had beautiful horses with their joints literally sawn through by struggling when entangled in this treacherous and barbarous fence." He suggests the use of a plain wire without barbs, and a rail of some kind along the top, in order that animals may be able to perceive the fence before coming to it, for, although the plain wire "would not saw and cut as the barbs do, it would be quite liable to play sad havoc with a quick, nervous horse, should he become entangled therein." A painted rail could be very plainly seen at a sufficient distance to turn animals that might otherwise run on a wire fence on account of not noticing it.

AN OBJECT IN LIFE.

There is nothing like having an object in life, and we pity the poor fellow who travels wearily and aimlessly through the world. According to an Illinois writer, the western farmers are not of this class, for they have an object, and pursue it with a remarkable tenacity and steadiness of purpose, even unto the last. To accomplish their great object of life, they work early and late, often depriving themselves of needed sleep, eschewing most of the comforts and all the luxuries of life. This great object to which they thus devote their lives, is to raise more Corn to feed hogs, to get money to buy more land, to raise more Corn to feed more hogs—and in this glorious pursuit, this charmed circle, they move until the Almighty stops their hoggish propensities.

ECHEVERIA.

This genus of succulent plants is both novel and interesting, and, being natives of arid countries, they will grow and thrive luxuriantly where many other plants would wither and die. They are often used for ribbon lines and borders of beds, with low-growing foliage-plants,



forming a beautiful contrast. As house-plants they are particularly valuable, for they will succeed under the most unfavorable circumstances. At all seasons they should be watered cautiously, particularly in winter. The engraving represents *Echeveria rosacea*; flowers scarlet, tipped with yellow.

CABBAGE WORM.

An experiment tried by C. C. YOUNG, of Henry county, Ohio, results in the discovery that unleached wood ashes prevents the ravages of the cabbage worm and the deposit of eggs on the plants by the millers. He says: "I took dry, unleached wood ashes in full strength and splashed right on top of each plant, from a half to a full stove-shovelful, determined to kill the worms if it killed the Cabbage, (which was sure of total destruction any way, if no better remedy could be found than had been applied,) and, to my satisfaction and almost astonishment, the first application proved a radical cure, killing almost instantly every worm touched by the ashes. I took pains to jar the plant, by hitting it lightly with my foot, to shake the ashes down thoroughly between the leaves, to be sure to make soap of every worm." The plants were not only uninjured by the ashes, but "started with new life and energy. The swarm of millers which had constantly been hovering over the patch, seemed to leave in disgust, and no further trouble was experienced for several

weeks, but a rapid and unmolested growth of the plant ensued. But finally the millers gradually made their appearance again, and I resorted to the same means as before, with equal success, and the result was as fine a lot of Cabbage as I ever raised before this pest was known—some heads too large to go into a half bushel."

A LITTLE GARDEN.

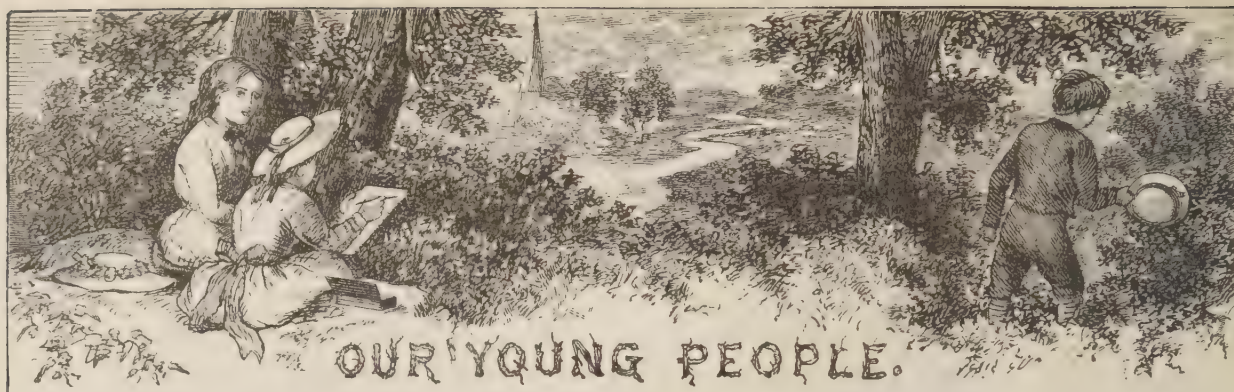
I have only a tiny piece of ground for flowers, but I have for two or three years only grown Geraniums, Verbenas, Pansies, Phlox, and one or two others, and you have no idea how many flowers and how much enjoyment I get out of these few. Of course I have Mignonette, and something for green. Any day during the summer we could pick a half-bushel basket full, and heaped up, and yet I had less than twenty-five feet square, and of course there were walks cut through that. I know that even you, although you can do everything with flowers, never raised prettier Cypress Vines than we had last summer.—NETTIE I. R., *Ypsilanti, Mich.*

A SIMPLE ORNAMENT.

MR. VICK:—At this season of the year when anything green so greatly adds to household ornaments, ideas of this kind may be interesting. The following may possibly be news to many of your readers: Procure a Carrot, a short, thick one is best, place in a mug or vase deep enough to allow the top of the Carrot just to come up to the top of the vessel; fill up with water, and in an almost incredible short time the Carrot will begin to grow, the growth being so fast as almost to be seen. Soon the green tops will fall over the sides of the vase, making a handsome ornament for brackets. Nothing can be cheaper, and nothing prettier in the winter time than this simple addition to our household charms.—R. T. B., *Kingston, Ont.*

COBCEA IN THE WINDOW.

MR. VICK:—I feel like thanking the gentleman, Mr. CHARLES E. PARSELL, for his notes on the Cobœa published in the MAGAZINE for September. A friend sent me the MAGAZINE with an article marked. After reading it I started for a greenhouse, where I purchased two fine young plants. They were potted at either end of a long window-box, filled with rich earth. A wire arch, nearly six feet in height, was securely set in; the space between the Cobœas was filled with Geraniums and double Petunias. The second day I found the tendrils catching the wires; they have grown upward and onward until my sunny dining-room window is a "thing of beauty."—MRS. G. F. B. *Boston, Mass.*



OUR YOUNG PEOPLE.

TREATMENT OF GOLD FISH.

MR. JAMES VICK :—In the first week of December I bought an aquarium containing three gold fish. One of the fish died last week, and another is beginning to be covered with a white coating, the same as the first one. It was three or four weeks after the first appearance of the white coating that the fish died. Is there anything we can do for the fish to cure them, and will you please tell us how to care for them, what to feed them, etc.—NETTIE BAILEY, *Hammondsport, N. Y.*

Desiring to give the fullest information, we referred the above to our friend, SETH GREEN, who has a world-wide reputation, and knows more about fish than any other man in America, knowledge he is willing to impart to all who ask. Mr. GREEN has kindly sent us the following, full of valuable information:

I will tell Miss NETTIE how to care for her gold fish. The cause of the fungus growing on the fish is that the slime or scales of the fish had become rubbed off, either by handling or by some other means. If you wish to move your fish from one vessel to another, you should use a net made of some kind of thin, soft material—mosquito netting or an old veil will answer. They should never be taken in the hands. You may not have handled them, but some one else may have done so, either before or after you purchased them. The only cure I know of for the white fungus, is to make a strong brine of common salt and put the fish into it for a minute or two, then immediately put them back into fresh water. Do this three times a day. If you commence doing this when you first discover the fungus growing on them, you will sometimes cure them. When you have healthy fish, keep them well by changing the water every time they come to the top and keep opening their mouths, and seem to be breathing more air than water. When you change the water, do so by taking about one-half out at a time and replacing it with fresh—a full change is very apt to prove injurious. Give them plenty of food, such as angle-worms, or any kind of insects, or fresh meat cut into small pieces; fish-wafer is also good. They should have a change of food every week or so.

If you have no plants in your aquarium, I

would advise putting in a little fresh earth as often as once a month, and leaving it for two or three days. There should be no food left in the water after it is ten hours old, as decaying meat taints the water the same as it would the air. A fish's nostrils are more sensitive to bad odors than Miss NETTIE's, but she would have the advantage of the fish, being able to run away, whereas, the fish, enclosed in a small aquarium, must stay and take it as it comes.

Now, Miss NETTIE, I want you to make a study of your fish, and you will soon learn when anything ails them; you will learn by their actions that something is wrong, and will know it as sure as you know when your own head aches, and if you are as prompt to do something for your fish as you are to do something for your head, your fish will thrive much better. I have a daughter who keeps gold fish for years.—SETH GREEN.

THE CORK TREE.

"Papa," said my little girl, "what is cork made of?"

"Well, KITTIE, the truth is, cork is not made, as you suppose, it is one of the many things that grows ready for the use of man, and all he has to do is to gather and cut it to the various shapes required for its use.

"In Algeria there are several forests of what is called Cork Oak, *Quercus suber*, and, once in every eight years the crop of cork is gathered from those trees. The cork is the outer bark, which, after the tree is four or five years old, makes a rapid growth and becomes very thick. While this outer bark is increasing, a new bark forms on its inner side, and thus the Creator has provided a covering for the tree by the time the old bark shall have become cracked and dry, and useless for further protection. It is just before the outer bark has reached this useless condition, and while there is yet life and pliability left in it, that the workmen go forth and carefully separate it from the trees. This operation is performed during the summer months, by cutting furrows in the bark, length-

wise, and making cuts crosswise, about forty inches apart: the bark is then beaten, in order to loosen it from the tissues beneath, after which it is pried off in square pieces, as shown in our illustration. The bark is finally carted to the



factory, where men and boys cut and turn it into the different shapes used for corks, bungs, and such-like. If the barking, or peeling, is carefully done, without hurting the new bark beneath, it does no injury to the tree, but is beneficial in removing what would eventually become an incumbrance.”—J. W.

CULTIVATING BIRDS.

MR. VICK:—You invite your readers to write to the *MAGAZINE* and exchange items of observation and experience, and so I thought I would give my experience in cultivating the birds; for birds can be cultivated as readily as flowers. I have a little flock of Snow-birds of about a dozen, and two Song-sparrows that stay constantly about the grounds and come many times a day to their feeding-places, and they are quite tame. They are very fond of dry Indian Corn meal, and bread crumbs, and seeds of various kinds; the meal should be placed in little heaps on the snow, and it is well to have a sheltered place for them in stormy weather.

The cold weather came sooner than usual this last autumn, and prevented me from cleaning up my flower-garden as usual, so the most of the beds are full of plants gone to seed, and these seeds are eaten by the Snow-birds with avidity, so that the flowers, after giving us pleasure all summer, now afford sustenance to

the winged people. And I also observed, before the last heavy snow-fall, that those beds which had not been cleaned up were covered with leaves kept in place by the plant-stalks, while the beds where the stalks had been removed were smooth, and so the leaves had all blown off, and I have determined hereafter to let them all stand until spring.

In the autumn I gathered wild berries of the Green-briar, Poke-weed, Poison Ivy, Wild Grapes, and spikes of Goldenrod and put them on my brush-fence, where they are much enjoyed by my little, feathered friends.

Many a dark hour has been enlivened this winter by the presence of my pretty pensioners. It is very interesting to watch them. The Cedar birds hold their food fast with their feet, and are partial to the wild Cherries, a few of which still cling to the branches of my pet tree that fed the Robins, Cat birds, and Blue birds last fall. Besides these, there are Winter Wrens, and Goldfinches, and the beautiful little Tree Sparrows from Canada; these last are dainty little sprites, and look much like our Wood Sparrows, but are prettier—they have a small, dark spot on the center of the breast, and light marks on the wings. When I began to study the birds I was astonished to find so many winter birds; I used to class them all as Snow birds, but, when one observes them closely, there seems to be almost as many varieties as in summer. The Song Sparrows and Goldfinches are not exclusively winter birds with us, for they stay the whole year; but the Goldfinches are gray in winter, and if one was not aware of their change of color they might be mistaken for something else, and I have no doubt many people do take them for Snow birds. I was a whole year finding out what a Song Sparrow was, because I did not know they wintered here; in New England they are among the first of spring comers, and leave in the autumn for warmer climes. There is one little fellow that I am in doubt about, and should be much obliged if you, or some one of your contributors, would name him for me. I imagine he is either a Nuthatch, Creeper, or Tomtit. He is quite small, gray and black, with black on the top of the head and throat, sides of the head are gray; his movements are very quick, and he holds his food with his feet, like the Cedar bird. He seems to eat cocoons and larvæ, like the Wren, and he also eats the dried Cherries. I have never seen more than two, and they come but seldom.

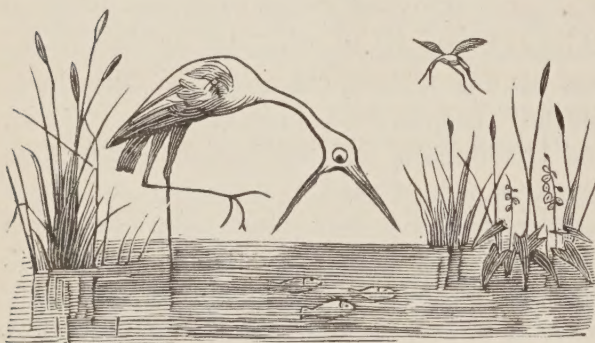
You would be doing me, and many others, no doubt, a kindness by recommending a good work on ornithology within reach of moderate purses. Wilson and Audubon are too expen-

sive to be thought of, except with longings and vain desires after the unattainable.

I cannot close without a word of thanks for your beautiful new Catalogue. It is the most artistic work of the kind that I have ever seen. The colored illustrations to the MAGAZINE are lovely, especially the Lilies, Delphiniums, and Snow-flower.—JENNY DARE.

CONE'S *Key to American Birds* is the best authority, and costs about seven dollars. A very excellent work is Minot's *Land and Game Birds of New England*, which can be had for about three dollars. There are no colored plates in it, but quite a number of good, outline wood cuts, while the descriptions of the birds, their habits, locations, and bills of fare are very minute and interesting.

THE LEGEND OF THREE FISHES.



"Your voice is low and sweet," she said,
 "You'll tell the story well;"
 Then, from her lips I heard the fate
 That on three fishes fell.

'T was in a wondrous pond they dwelt,
 The waters clear and bright;
 A blissful spot, a sheltered home,
 Nor toiled they day or night.

In mid-day sun and scorching heat,
 'Neath grotto's sheltering stones,
 No fisherman with cruel hook
 Could ever pick their bones.

But, as with mortals so with fish,
 They longed for something more—
 They saw the demon Discontent,
 They heard his angry roar.

With one accord they swam away,
 Past waving reeds and rushes;
 No eyes had they for the high art
 Concealed in Cat-tail bushes.

Oh! had they only studied art,
 With nature been content,
 In either case they had been safe,
 Their lives had not been spent,

For, in these days, Cat-tails and storks
 Are rarely seen apart;
 These fishes now lie victims on
 The altar of high art.

—A. B. SMITH, *Canandaigua, N. Y.*

WRONG CLOCKS AND BOYS.—Some clocks are always striking wrong. Their striking only tells us that there is something wrong inside. The talking of some boys shows the same thing.

TOM'S AQUARIUM.

It was Saturday afternoon. Fanny and her brother Frank had come to spend two or three hours with Tom and his sister Stella, and all four were soon gathered around the funny little aquarium.

It was none of those grand affairs, so discouraging in proportions and probable expense, to the young naturalist. There are many devices, more or less simple, for their construction, but this particular one was made by inverting a very large, flat-topped, glass screen, such as bakers use, and placing under it, for a standard, an old-fashioned, heavy, glass bowl, with a stem and firm base. Its contents were, first, clean-washed sand and pure spring or river water; next, a bit of rock-work and a dwarf Arrow-head plant placed in the center; then a small



ARROW HEAD.



FORGET-ME-NOT.

clump of Water-grass mixed with tiny reeds or rushes, and a little tuft of Forget-me-not planted in a little hollow of the rock-work, just above the water, and which flourished beautifully as soon as its roots found their way into it. Stella had added a pink-throated sea shell for a coral cave, she said, although her mother had suggested that it was in bad taste to put salt-water shells in a fresh-water aquarium. But she said it looked "so pretty." Then Tom had commenced to stock it by degrees with animal life.

Immediately upon approaching the tank this afternoon, Frank had exclaimed, "Look! Look! the terrapin is paddling right toward us."

"Yes," said Tom, "and now he's perched on top of the shell and stretching up his neck for something to eat."

"How hungry he looks," said Fanny, "How long have you had him, Tom?"

"Two years. I kept him the first summer in a small tub that I had set in the ground in a shady place, where Ferns could grow around it. Then I put in some minnows of different kinds, and father told me that unless I got some

water plants growing very soon the fish would die."

"Why, how strange," said Fanny, "fishes don't eat plants."

"Of course not; but he said that animal life consumes the—the—"

"Oxygen," said Stella.

"—consumes the oxygen from the air and water it lives in, and throws off carbolic acid—"

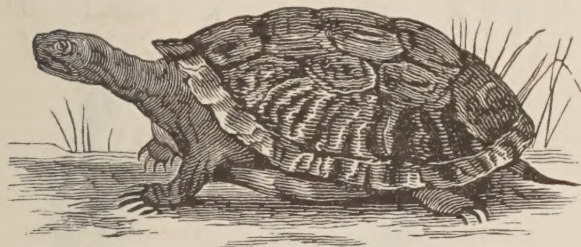
"Carbonic acid gas," softly suggested Stella.

"O, yes. (You see she's studying chemistry.) Well, animals consume the oxygen, and vegetation absorbs the poison of this gas that the animals throw off."

"Ho!" exclaimed Frank, "then that sort of thing is going on all over the world, I suppose. The forests and all growing things keep the horses and cattle, and us, too, alive!"

"Yes, and just to think!" said Stella, excitedly, "that away in foreign countries every Palm tree, for instance, helps an elephant to live."

"You needn't go so far for fine speeches," said Tom, mischievously, "why don't you say that every Pig-weed helps a toad to hop?"



MR. TERRAPIN.

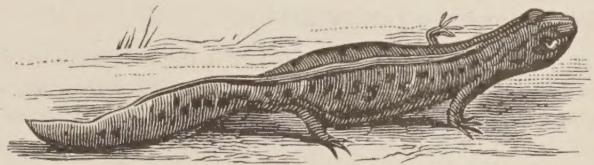
After a laugh, Fanny inquired, "Well, what plants did you put in your tub? I want to know all about it; for Frank and I have been wondering what we can have new for next summer—new to us, you know."

"I put in nothing but flags and reeds and a tuft of water-grass. But they grew nicely; and you wouldn't believe how much I learned about different creatures before summer was over, by trying to get them to live together."

"What is that silvery thing in the bottom?" interrupted Frank. Tom replied that it was a "water boatman," and stirred him up with his lead pencil, when out darted some fishes from their cove in the shell—a shy crawfish (or crayfish) came suddenly from his hiding place; a newt, or water lizard, commenced his astonishing antics, to the intense delight of his spectators, and a large water-beetle, with a golden band around his neck, seemed to be seeking a snail, whose mates he had already devoured. The water boatman was on his back skimming around rapidly, using his two oar-shaped hind legs to paddle himself with, and evidently seek-

ing prey. Stella caught a fly and dropped it on the water when he caught it instantly and dropped to the bottom.

Still the newt continued his performances until Fanny declared he must be crazy. Suddenly he sank and seemed to sit erect on the



MR. NEWT.

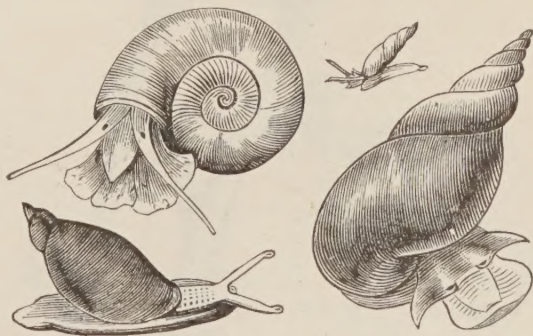
sand, like a pet dog asking for food. Then Tom told them that one day, while he was watching it, the fellow squirmed himself out of his outer skin and immediately swallowed it. "So you see," he added, "that instead of giving his worn-out clothes to the rag-man, he eats them up."

"Of what use are snails in an aquarium?" inquired Frank.

"O, the water snails clean off the sides of the tank when they get slimy or greenish. The beetle would fly away at night if I did not keep him covered, and now I must let him go, for I cannot spare my last snail. O, Stella! I wish we could show them how he eats; see if you can find him at work."

Sure enough, on the back of the tank, there he was. Turning it carefully around, they each one saw, through a magnifying glass, his tube-like tongue, which he turned inside out at the end, and making a very long sweep with it on the glass, would close it up and draw it into his mouth. Then, giving a little pitch forward, would repeat the process.

Then Stella showed them where a small mus-



WATER SNAILS.

sel had burrowed through the sand one day while she was watching, and was now anchored with his milk-white labia, or "mantle," closely against the bottom of the tank. She had them look, also, in amongst the water grass where, coiled tightly around the wiry stems, was a hair-snake that Tom had dipped up with some minnows from a pool next the shore. She told

them she had discovered that he is, very active at night, and lies on his oars most of the time during the day.

So interested were Frank and Fanny that they heard with regret the tea-bell ring. During the meal, Tom's mother remarked that Harry Blake, the lame boy, had a salt-water aquarium fitted up for him by means of a recipe for making artificial sea-water, and the contributions of an aunt near the sea-coast, who sent him, in a tin can by express, the material for stocking it. So the four friends promised themselves a visit to Harry Blake very soon. "But," added Frank, "I don't mean to let his grand things spoil the pleasure I intend to have with a tub-lake next summer."—AUNT MARJORIE.

CHERRY BLOSSOMS.

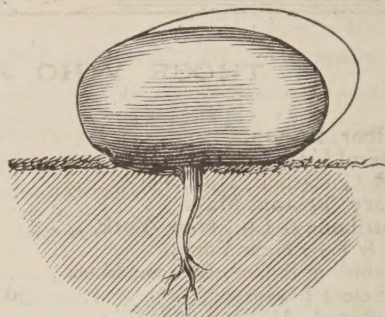
MR. VICK:—On the fourth day of December last we cut a few branches from our Cherry tree, in the front yard, and set them in a small bottle filled with water; every week or so a little more water was added, to make up the loss by evaporation. By February second we had leaves and flowers in fine display; just one month later than we expected, for we were told, when making the cuttings, that they would bloom in four weeks. They are none the less welcome, however, for having to wait and watch the swelling bud, the small speck of green, the bursting flower, and the unfolding leaf. They give us, at this season of the year,



a novel and unique mantel ornament, entirely different from anything the conservatory furnishes. I send you a drawing of two branches, one with leaf-buds growing singly on the stem, and the other with flower-buds borne in groups, so that, if some of your readers wish to try this experiment, they can select such branches as will suit their purpose.—J. W.

PROFITABLE PLEASURE.

I am glad, Mr. Editor, that you are teaching the young people to love nature, and how many curious and wonderful things we have, even in our fields and lanes, as well as the strange pro-



ductions of warmer climes. There is enough to interest the children in the growth of the simplest plant, and I think I never listened to a more interesting lecture than one I overheard my boy deliver to his little sister, who was much concerned because the Beans they had planted would not stay underground, but kept coming up. My advice to all the youth who read your MAGAZINE is, to study the nature of plants and flowers and trees, and they will be happy and have lots of amusement everywhere, in the



woods, and the fields, and the lanes. This is the advice of an old man who, in his "walks abroad," has great delight.

I don't know of any plant that will afford more pleasure to the boys than the Hollyhock. When a boy, I grew a great many of them from seed, and then divided the roots, so that I had quite a little plantation. They were mostly single, but of bright colors; in fact, all colors—yellow, cream, all the reds, purple and white. It was great fun to imprison the bees in their cups, and, when they commenced to sing, to hold them to my ear, or the girls' ears. Now we have splendid double kinds, as handsome almost as Roses, although they do not smell as sweet. I think, in fact, they are quite as handsome as any flower that grows; I mean when the tall stalk is covered with flowers, sometimes being almost a yard in length.—AN OLD BOY.